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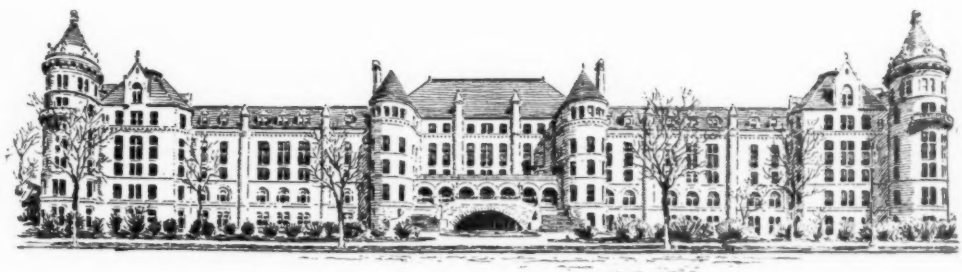

WITH SUPPLEMENT:

A GENERAL GUIDE TO THE MUSEUM

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THE AMERICAN MUSEUM OF NATURAL HISTORY was established in 1869 to promote the Natural Sciences and to diffuse a general knowledge of them among the people, and it is in cordial coöperation with all similar institutions throughout the world. Since the Museum authorities are dependent upon private subscriptions and the dues from the members for procuring needed additions to the collections and for carrying on explorations in America and other parts of the world, the attention of persons interested in such matters is called to the brief statement of deeds and needs on the fourth page of the cover of the Supplement.

The Museum is open free to the public on Wednesdays, Thursdays, Fridays, Saturdays and Sundays. Admittance is free to Members every day.

LONG-TAILED JAPANESE FOWLS

(See page 7)

The American Museum Journal

VOL. IV. JANUARY, 1904. No. 1

THE Supplement issued with this number of the JOURNAL takes the form of a General Guide to the exhibition halls of the Museum. It has been prepared for the purpose of facilitating a rapid survey of the collections which have been placed on view. Those halls which have already received extended treatment in the Supplements of the JOURNAL are passed over with few words, in order to devote more space to the remainder. The twelve Guide Leaflets which have preceded this one will be found to supplement it in as many important directions. Other Guide Leaflets to special exhibits and to the halls as units are in course of preparation, and will be issued from time to time.

THE BEHAVIOR OF THE MINERALS AND GEMS OF THE MORGAN COLLECTIONS TOWARD RADIUM AND OTHER SOURCES OF LIGHT.

DURING the past summer, Dr. George F. Kunz, Honorary Curator of Gems, and Professor Charles M. Baskerville, Professor of Chemistry in the University of North Carolina, made a careful study of the action of ultra-violet light, Roentgen rays and radium upon the specimens in the Bement-Morgan and Tiffany-Morgan collections. These collections are the most complete of authenticated minerals and gems on exhibition in the country and give a unique opportunity for the observation of fluorescence and phosphorescence resulting from treatment in the manner indicated. In all, about 13,000 verified minerals and gems in these collections were carefully studied. In addition to these, the investigators submitted to the sources of radioactivity selected stones from about 15,000 British Guiana diamonds, and two particularly handsome diamonds, one of which

was a tiffanyite, besides several carbonados. The radium preparations used were of the highest activity obtainable, and were secured for the Museum through the liberality of Mr. Edward D. Adams. The results here announced were obtained through the use of radium bromide of 300,000 and radium chloride of 7,000 activity, and with radium barium carbonate of 100 activity, uranium being taken as the standard at 1.

Minerals may be separated tentatively into those which

1. Do not respond to radium, ultra-violet or Roentgen rays.
2. Respond to radium only.
3. Respond to ultra-violet rays only.
4. Respond to Roentgen rays only.
5. Respond to radium and ultra-violet rays (not to Roentgen rays).
6. Respond to radium and Roentgen rays (not to ultra-violet rays).
7. Respond to ultra-violet and Roentgen rays (not to radium).
8. Respond to radium, ultra-violet rays and Roentgen rays.

With ultra-violet rays it was found that minerals from Langban, Sweden, behave differently from the same species from other localities. The obvious suggestion is that here, and at points where similar exceptional results appear, as at Borax Lake, there is present some rare (perhaps new) element, widely diffused in very minute quantities. An illustration is given by the behavior of glauberite; specimens from Borax Lake, California, Laramie and Spain phosphoresce, while specimens from Chile do not.

It is noteworthy that tourmaline, which is so markedly pyroelectric, gives no response; nor does beryl, save in three specimens from Haddam Neck, Conn. American sapphires of various kinds, spinel, chrysoberyl and almost all jades, gave no response to the ultra-violet rays. Most of the gem-minerals, except diamond, opal and kunzite, are little acted upon.

The studies indicate the presence with the zinc in willemite and hydrozincite and in the artificial phosphorescent zinc sulphide and zinc oxide, of some element, probably not yet determined, that possesses peculiar properties, one that in combination with

a zinc mineral gives high luminosity by the application of radium, or any other radio-active body.

The variable action of fluorspar with the various kinds of rays makes it probable that there exists in that mineral either yttrium or ytterbium, or some other related rare earth, or perhaps several of them.

Some highly active element seems to be present in all of the numerous and complex minerals from Borax Lake, California, but it is not responsive to radium. This is evidently a substance not necessarily radio-active itself, but one possessing the same or allied properties with the substance found with the zinc minerals. A slight exposure for one or two seconds causes all of them to phosphoresce, sometimes for a full minute.

The substance present in calcite from Franklin, N. J., and from Langban and Pajsberg, Sweden, is probably yet another body, as it does not respond to radium; although the willemite found with the calcite at Franklin responds in marked degree not only to radium, but also to actinium, polonium, Roentgen rays and ultra-violet rays. The willemite, furthermore, is triboluminescent, emitting light even when struck against the side of a glass full of water. When powdered, this mineral serves admirably for radio screens, being almost if not quite as good for this and similar purposes as the artificial platinum-barium cyanide. The new lilac-colored spodumene from California, named kunzite by Professor Baskerville (*Science*, September 4, 1903), responds wonderfully to the influence of radium, actinium, polonium, Roentgen rays and ultra-violet rays, and is strongly pyro-electric.

There probably exists in autunite, and another yellow-brown uranium mineral from Texas, a fluorescent substance which differs from anything elsewhere noted in the collection.

In the hyalite, from San Luis Potosi, a volcanic mineral, there is present something that responds with a beauty of color that strikingly reminds one of nitrate of uranium; this may be still another substance.

The most responsive of all, however, whether to radium, actinium, polonium, Roentgen rays, ultra-violet rays or mag-

nesium light, were the diamonds to which Dr. Kunz gave the name tiffanyite in a paper read before the New York Academy of Sciences in December, 1895. These stones contain a peculiar substance which gives them what is known as the blue-white color. They are fluorescent like anthracene, and hold the luminosity for a long time.

At the meeting of the New York Academy of Sciences held in the Museum on October 6, 1903, Dr. Kunz gave a summary account of his and Professor Baskerville's interesting and valuable investigations, illustrating his remarks with many specimens. The scientific aspect of the studies is discussed in the *American Journal of Science* for December, 1903, and January, 1904.

AN EXTINCT CAVE FAUNA IN ARKANSAS.

GREAT part of the evidence as to the antiquity of Man in the Old World has been found in ancient caves, where his bones or indications of his existence have been found associated with remains of many extinct animals of the Pleistocene Epoch or earlier. But in this country the exploration of caves has until recently yielded very meagre results as to extinct animals, and has added practically nothing to our evidence of the antiquity of Man. Within the last two years, however, explorations conducted by Professor F. W. Putnam and Dr. J. C. Merriam in the Pleistocene caves of California, have brought to light a large series of fossil remains, mostly of extinct species of animals, and recently another rich cave deposit, equally ancient, has been found in Arkansas, and is now being investigated by this Museum. This deposit was discovered by Dr. Teller, and we owe to the good offices of Professor Putnam the opportunity to explore it. Mr. Barnum Brown, who was sent out for this purpose by Professor Osborn last summer, has already succeeded in making a collection consisting of some thousands of specimens of over thirty species of animals, many of them extinct. The collection is especially rich in remains of small mammals such as

rats, mice, shrews, bats, weasels and hares. No certain indications of Man have yet been recognized, but it is hoped that further explorations may give some definite evidence as to his existence, as this would be the most conclusive proof yet furnished of the antiquity of Man in the New World.

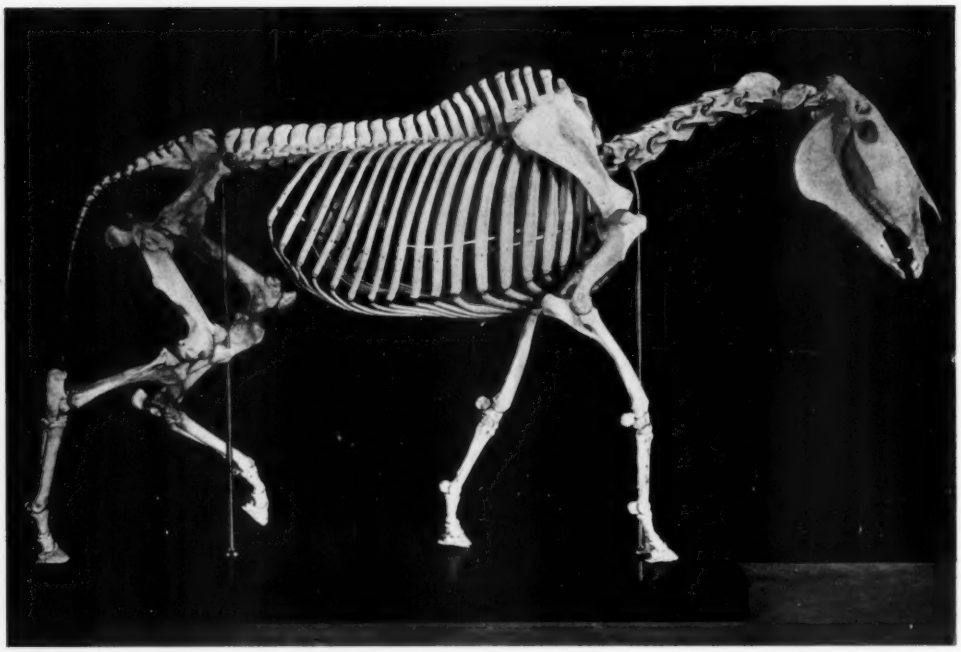
W. D. M.

THE LONG-TAILED JAPANESE FOWLS.

THE long-tailed Japanese fowls (see frontispiece) secured for the Museum by Prof. Bashford Dean have recently been mounted and placed on exhibition in the Bird Hall. Professor Dean states that this peculiar breed of fowls has been so long established (it was known in Corea prior to A.D. 1000) that its wild ancestors cannot be determined. It appears, however, to have been developed solely through artificial selection by breeders, from birds in which, because of failure to molt, the tail-feathers continued to grow for an indefinite period. In the Province of Tosa, in the Island of Shikoku (the third largest island of the Japanese group) breeders were encouraged by the Daimyo of the Province to produce fowls with especially long feathers which were of heraldic importance and were used by the Daimyo as decorations for his spear.

The best individuals of this fowl are still grown in the Province of Tosa where Professor Dean procured the specimens now owned by the Museum. The industry, however, probably through lack of governmental support, is now on the wane, so much attention being required to produce long-feathered birds that their breeding is not commercially profitable.

The birds are given high perches as their feathers develop, are fed with great care on nourishing food, and the long feathers are wrapped in mulberry paper to protect them from dirt and abrasion. It is said that a growth of six inches per month has been obtained by proper treatment, and the longest recorded feather measured twenty feet and two inches. The tail of the best developed Museum specimen measures fourteen feet.



DRAUGHT HORSE—SIDE VIEW

THE DRAUGHT HORSE IN ACTION.

THE latest addition to the alcove exhibiting the evolution of the Horse, as the gift of Mr. William C. Whitney, is a mounted skeleton which represents a draught horse in action.

In the general plan of preparation for this alcove the Curator, Professor Osborn, designed two series: the first, of fossil horses, and of the wild horses, asses and zebras so far as they can be secured, to show the evolution of the Horse in a state of nature; the second, of the domesticated horses, showing the modification of the skeleton as brought about by the artificial selection of man. This double set will give a number of comparisons and contrasts of the most interesting character, for it will demonstrate that natural selection has been quite as effective as artificial selection in producing great extremes of structure.

The three types selected to show the varieties of the domesticated Horse are, the largest and most powerful form, the Percheron or draught horse, the Shetland pony to show the smallest and least powerful form, and the race horse to show the swiftest form. Of these the draught horse has been finished, the Shetland pony is now in preparation, and Mr. Whitney is interesting himself in the selection of a suitable skeleton of a race horse.

The Percheron horse, the skeleton of which has been prepared to show the draught horse type, was presented by Mr. George Ehret. In life the animal weighed 2160 lbs., and was 5 ft. 6½ inches in height at the withers. Preparatory to the mounting, Mr. S. H. Chubb, who has had entire charge of the preparation of this series under the direction of Professor Osborn, took a large series of photographs of the side, front and rear views of similar horses hauling heavy loads, in order to ascertain as nearly as possible the position of every part of the skeleton when the animal is

DRAUGHT HORSE—VIEW FROM ABOVE AND BEHIND

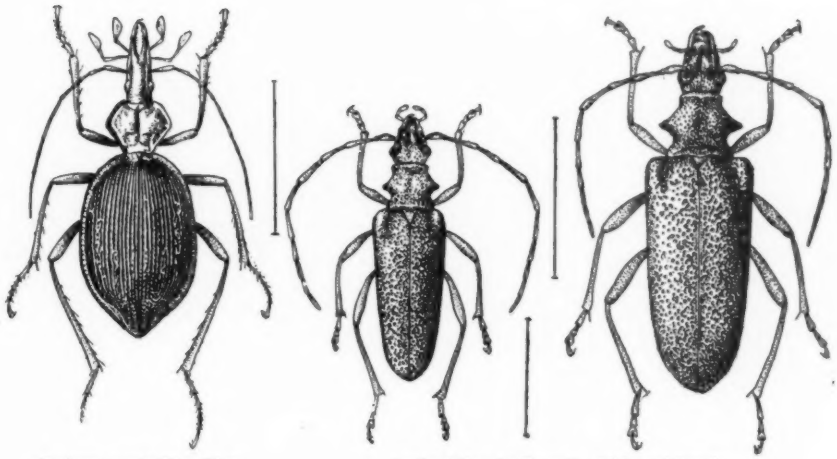
so employed. Then began the difficult task of mounting. The result is considered completely successful. It throws light not only upon the osteology of the draught horse, but on the significance of various features of the skeleton in general.

In studying the mounted skeleton we have to imagine that the shoulders rest against a collar, against which the horse is throwing its weight and exerting its energy. To this end the head and body are lowered, the fore limbs acting chiefly as supports, although part of the weight is thrown against the collar. The hind limbs are doing the greater amount of the work; they are the real propellors of the body. In the side view the exact position of each of the limbs is shown, and the flexure of the various joints, also the fact that the backbone is lowered toward the ground and that the head is thrown over to one side.

A still more striking point of view is that from above and behind. We here note that the right half of the pelvis has been lowered and thrown well to the left, so that the right hip joint has been brought much nearer the mid-line than the left. The purpose of this is to transmit the energy from the hind limb as nearly as possible through the central or main axis of the body. This is further facilitated by the curvature of the backbone. At the next moment the left leg will get its "purchase," the right being released; the pelvis then swings to the right side, the curve in the backbone becomes reversed, and the power of the left hind limb is applied similarly along the main axis of the animal; and so on from step to step.

The skeleton of an animal is popularly considered its least interesting part; but this method of illustrating its adaptation for special purposes, by representing it in various kinds of action, immediately transforms the skeleton into a subject of the greatest interest. In fact, the wonderful evolution of the Horse as it will be shown in the fossil series can only be thoroughly understood when taken in connection with the special motions and actions of the living Horse.

The race horse will be mounted as running at full speed; the Shetland pony as in the act of grazing. Another mount, nearly ready for exhibition, is of a rearing horse held in check by a man.



Cychrus æneicollis. Male. *Anthophilax hoffmanii.* Male and female.

NEW NORTH CAROLINA BEETLES

DEPARTMENT OF ENTOMOLOGY: EXPEDITION OF 1903.

THROUGH provision made by Mr. Samuel V. Hoffman, the curator of the Department of Entomology, Mr. William Beutenmüller, was enabled to make a trip in May and June, 1903, to the Black Mountains of North Carolina, in continuation of the work of previous years. The unusual rains which prevailed during May prevented full success in the collection of the characteristic species of the season, still about 7,000 specimens were obtained. In the series there are many species not before represented in the Museum collections and some that were new to science. Many scientific data were obtained for use in the preparation of the contemplated work on the Insect Fauna of the Black Mountains, North Carolina, and adjacent Ranges. Some of the new and the rarer previously known species obtained on the present expedition were made the basis of an article which was published in the Museum *Bulletin* during September last. One of the new forms was named *Anthophilax hoffmanii*, or Hoffman's longhorn beetle, in honor of the late Very Rev. E. A. Hoffman, whose interest in entomology and whose friendship for the Museum greatly enriched the Depart-

ment during his life. This species, figures of which appear on page 11, has bright metallic green forewings and a brassy-black thorax. The beetle lives in the dense evergreen forests which cover the summits of the Black Mountains, and its larva feeds in the wood of the balsam-fir. Among other rareties brought back are several species of the genus *Cychrus*. These beetles, one of which is figured on page 11, devour live snails for food.

THE ARCHÆOLOGICAL EXPEDITION TO THE COLUMBIA VALLEY.

ARCHÆOLOGICAL explorations of the Jesup North Pacific Expedition were carried on in 1897 by Mr. Harlan I. Smith in the Thompson and Fraser River Valleys of southern British Columbia; and in 1898–99 in the shell-heaps along the coasts of British Columbia and Washington. In continuance of the general archæological reconnoissance thus begun in the Northwest, the Columbia Valley was chosen as the field for research during the field season of 1903. The region is exceedingly dry and supports no trees except in the river bottoms, or where irrigation has been successfully prosecuted. The country has come to be known for its production of fruit, hops, hay and wheat raised by means of irrigation.

The Museum already had some heterogeneous collections from the Columbia Valley in the vicinity of The Dalles and Portland which indicated that the prehistoric culture of the region was different from that of either the coast of Washington or the Thompson River country. The latter lies immediately to the north of the Yakima Valley, which was chosen as the base of operations for the new investigations. It was thought that by working in the Yakima Valley the boundary between the culture of The Dalles and that of the Thompson River region might be determined. The material however discovered by the expedition seems to prove that the Yakima Valley was inhabited by people having a culture which previously had been unknown to science.

In the region were found numerous evidences of the close communication of the people of this culture with tribes of the Thompson River region. Underground house sites, tubular pipes, engraved dentalium shells, a decoration consisting of a circle with a dot in it, and rock-slide sepulchres, each of a particular kind, were found to be peculiar to both regions.

Considerable material of the same art as that found in The Dalles region was seen. It is clear that the people living in the Yakima Valley had extensive dealings both with the tribes northward, as far as the Thompson Valley, and southward, as far as The Dalles of the Columbia. In this connection it is interesting to note that the present Indians of the region travel even more extensively than would be necessary to distribute their artifacts this far. Much less evidence of contact between the prehistoric people of the coast of Washington and that of the Yakima Valley was discovered. A pipe, however, was seen which is clearly of the art of the northwest coast. It was found far up the Toppenish River (one of the western tributaries of the Yakima).

From the Yakima Valley the expedition was transferred to the lower Cowlitz River for work down that stream and along the Columbia from Portland to its mouth, partly to determine whether or not a portion of the evidences of coast culture which were found in the Yakima Valley had not come up the Cowlitz and down the Toppenish River, since the headwaters of the Cowlitz and the Toppenish are near each other. In this region many specimens were secured. The main work, however, was done in the Yakima Valley, where many photographs were taken, not only of archæological sites but also of the country in general. Human remains, which are useful in determining the type of these old people, were also collected.

The most remarkable specimen secured was a piece of antler carved in human form. This was very thin and when found it was nearly as soft as so much sawdust or moulder's sand pressed together tightly. Proper treatment has rendered the object quite hard and able to bear handling. It was found under the vertebræ of a child in a grave. The grave was of peculiar in-

terest, because, contrary to usual practice, the body had been enclosed in a rude box made by placing about it thin slabs of stone, and the cist thus formed had been covered with jagged fragments of rock, over which earth was spread. This doll-like carving of antler is considered to be one of the finest pieces of prehistoric art ever found in Northwestern America.

On the whole the expedition may be considered particularly fortunate in getting archæological data and material which tend to prove the occupation of the Yakima region by a people of a hitherto unknown culture.

DEPARTMENT OF VERTEBRATE PALÆONTOLOGY: FIELD EXPLORATIONS IN 1903.

THE past summer was a very successful season for the Department of Vertebrate Palæontology. Five expeditions were in the field, three for fossil mammals, two for fossil reptiles, and all have met with much success. The objects of the expeditions were:

1. *Jurassic Dinosaurs.* The great Bone Cabin Quarry in Wyoming continues to furnish fine specimens of these gigantic extinct reptiles. For this season the prize specimen, found by Mr. Kaison, is a complete skull and the jaws of a great Amphibious Dinosaur, hitherto one of the especial needs of the collection.

2. *Cretaceous Reptiles.* Two years ago Mr. Harry Dougherty of Hat Creek, Wyoming, discovered part of a fossil skeleton not far from his ranch. This specimen was purchased for the Museum by Professor Osborn, and through Mr. Dougherty's courtesy our representative was able to look over the neighborhood where it was found. It seemed to promise well for further discoveries, and accordingly Mr. Barnum Brown was sent out last spring to explore it. He found a number of complete skeletons of Mosasaurs fifteen to twenty feet long, and incomplete skeletons of Plesiosaurs forty feet long. These were great carnivorous marine reptiles, the Plesiosaurs with long snaky neck, while the Mosasaurs were more compactly built.

3. *Eocene Mammals.* Mr. Walter Granger had charge of this expedition, in southwestern Wyoming, and succeeded in sending in a large and remarkably fine collection of these rare fossils. The series is especially rich in the monkeys, rodents and small carnivora of the Middle Eocene, which until now have been very inadequately represented in our collections.

4. *Miocene Mammals.* Mr. J. W. Gidley was in charge of this expedition, in South Dakota, and obtained a fine skeleton, nearly complete, of the Miocene ancestor of the camels, besides a number of skulls and other fine specimens of extinct Horses, Camels, Carnivores and Rodents of the Upper Miocene, which will greatly add to our representation of these animals.

5. *Pleistocene Cave Mammals* of Arkansas. This collection is referred to on page 6.

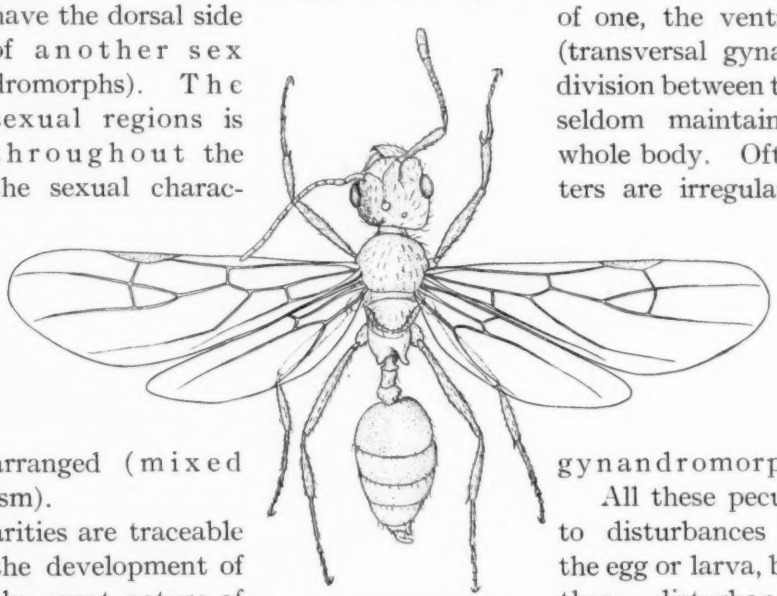
SOME EXTRAORDINARY ANTS.

THERE has just been placed on exhibition in the Synoptic Hall of the Museum a collection to illustrate the strange phenomena of gynandromorphism, a subject considered by Professor W. M. Wheeler, Curator of Invertebrate Zoölogy, in a recent paper in the Bulletin[1] of the Museum issued in December.

As the name indicates, a gynandromorph is an animal the body of which is partly male and partly female. The male and female characters may be either blended, as in the cases of male animals with female coloring or sculpture, or *mosaic*, as in animals having the body made up, as it were, of male and female pieces, just as a mosaic pavement is composed of different pieces of marble. The mosaic type of gynandromorphism is the more frequent, though this is merely a relative expression, since all cases of gynandromorphism are extremely rare. The six new cases of gynandromorphous ants described in Professor Wheeler's paper were found only after examining many thousands of specimens during a period of four years. In most of the known cases of gynandromorphism, the body is divided into halves, one of which is male,

[1] Bull. Am. Mus. Nat. Hist., vol. xix, Article xxix, pp. 653–683, 11 figures, 1903.

the other female (lateral gynandromorphism). This phase of the phenomenon is illustrated in the accompanying figure. Another group of cases comprises anomalies with the anterior portion of the body of a different sex from the posterior portion (frontal or "tandem" gynandromorphism). Still other cases have the dorsal side of another sex dromorphs). The sexual regions is throughout the the sexual characarranged (mixed ism).



A GYNANDROMORPHOUS ANT
(*Epipheidole inquilina* Wheeler)
The left half of the specimen is mostly male, and the right half is mostly female. The figure is greatly enlarged.

of one, the ventral (transversal gynandivision between the seldom maintained whole body. Often ters are irregularly gynandromorph-

arities are traceable to disturbances in the egg or larva, but the development of these disturbances the exact nature of has not been ascertained, nor will they be understood until it is possible to produce such mixed animals experimentally. They may result from the fusion of two eggs originally of different sexes, to form a single animal; or they may arise from a single egg in which the fertilization has taken an abnormal course; or again they may perhaps be produced by nutritional disturbances in different parts of the young larva or pupa.

All these peculi-

Many gynandromorphs, but not all, are also hermaphroditic; that is, they have both male and female reproductive organs corresponding with the parts of the body contributed by the two sexes. In cases, however, where the whole abdomen is of one sex, the animal is properly a male or female, though its head may

be of the opposite sex. Gynandromorphous ants are especially interesting, on account of the great differences between the normal sexual forms. When the characters of the male and female are united in the same individual, some absurdly asymmetrical creatures are the result, such as forms with a big (male) eye and small (male) mandible on one side, and a small (female) eye and large (female) mandible on the other. When the male and worker (that is, abortive female) characters are united in lateral gynandromorphs, we have wings only on the male side of the body, and the thorax on the worker side is defective, etc. The great majority of known gynandromorphs occur among insects, and among these the honey bees and ants have contributed a proportionally very large number of cases.

THE MEXICAN COTTON-BOLL WEEVIL.

NEAR the entrance on the ground floor there has been placed a special exhibit of the Mexican Cotton-boll Weevil, the insect which has been and is doing so much damage in the Cotton Belt of the South. The insect is a beetle (*Anthonomus grandis*) which deposits its eggs in the young cotton boll. The developing larva consumes the cotton-producing tissue within the boll and prevents the formation of the cotton, or greatly injures the product. The exhibit shows the insect in its different stages of growth, together with affected and unaffected bolls. The maps forming a part of the exhibit indicate the recent rapid extension of the pest from its original home in Mexico over the cotton-raising areas of Texas.

Two hundred African butterflies have been given to the Museum by Mr. Samuel V. Hoffman to be added to the great series of butterflies which is the donation of the late Very Rev. E. A. Hoffman.

A WELCOME addition to the insect collections is the series of North American Diptera (Flies) recently presented by Professor William M. Wheeler, Curator of Invertebrate Zoölogy. The collection contains more than 8,000 specimens, representing about 1,000 species. There are types of 169 species.

CLIMATIC VARIATION IN COLOR AND SIZE OF SONG SPARROWS.

Illustrating Evolution by Environment.

THE first exhibit of several designed to illustrate variation in the color and size of birds due to climatic agencies, has recently been placed in the local bird hall and is here figured. It includes the leading types of Song Sparrows, a species which is particularly susceptible to the influences of its environment, no less than twenty climatic varieties, geographical races, or subspecies of this wide-ranging bird being known.

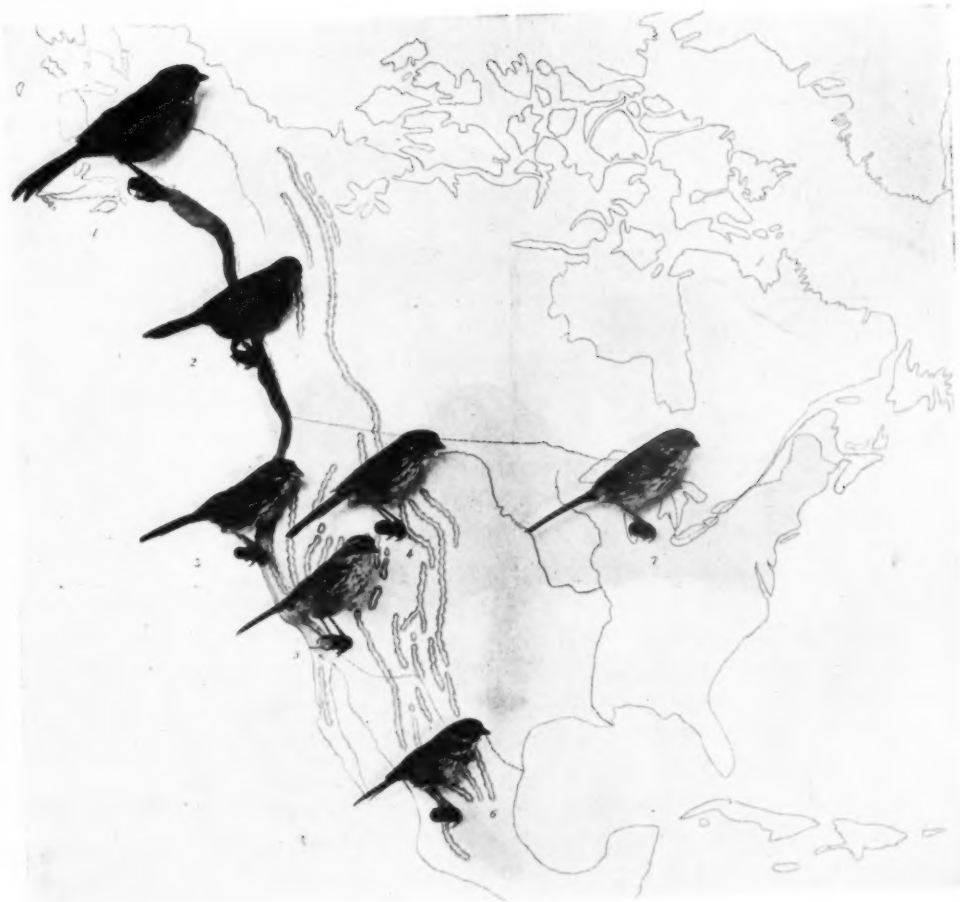
Observe that east of the Rocky Mountains, in a region where climatic conditions are quite uniform, only one well-marked subspecies of Song Sparrow is found; but that west of the Rocky Mountains, where there are widely varying climatic conditions, sixteen subspecies of Song Sparrow are known, twelve of them from California alone.

Note the striking relation between the colors of the various races and the aridity and the humidity of the areas they inhabit. Thus the palest-colored race, the Desert Song Sparrow (No. 5, *Melospiza cinerea fallax*), inhabits the most arid portion of North America, the desert region of Nevada, Arizona and southeastern California, where the annual rainfall averages about six inches; while the darkest-colored race, the Sooty Song Sparrow (No. 2, *Melospiza cinerea rufina*), inhabits the most humid portion of North America, the coast region of British Columbia and southern Alaska, where the annual rainfall may reach one hundred and twenty-five inches.

Note that, in obedience to the law that animals increase in size toward the north, the largest race, the Aleutian Song Sparrow (No. 1, *Melospiza cinerea cinerea*), is the most northern, and, the smallest race, the Mexican Song Sparrow (No. 6, *Melospiza cinerea mexicana*), is the most southern.

Between the lightest and darkest, the smallest and largest, Song Sparrows, however, there is complete intergradation in accordance with the change in the conditions which affect their color and size.

F. M. C.



DISTRIBUTION OF SONG SPARROWS

DEPARTMENT OF ARCHÆOLOGY: EXPLORATIONS IN THE SOUTHWEST.

ONE of the expeditions sent into the field by the Museum during the past summer was in charge of Mr. George H. Pepper of the Department of Archæology. The scene of operations was the Pueblo Region of New Mexico and Arizona. The object of the trip was not merely the enrichment of the Southwestern Collections of the Museum, but also and more especially the study of the arts and habits of the sedentary people in order that the survival of ancient practices might be detected in the collections which have resulted from former investigations in this part of the country.

In considering the various phases of Southwestern anthropological work, a student has always been confronted with the lack of absolute data concerning the ceramic arts of the various pueblos as viewed in a comparative way. Collections made in the field had, in many instances, been rendered unreliable for scientific study from the fact that all vessels were accredited to the pueblos in which they were found, and were, therefore, looked upon as typical productions of that village. This naturally had a misleading tendency and it was almost impossible for a scientist to make a definite statement concerning the absolute types that might be found in any specified pueblo. There were exceptions of course as the result of monographs by careful investigators who had made a special study of some particular village, but in general no authentic records were available.

Mrs. Robert de Forest of this city, who is an earnest student of ceramics, and Mrs. Phœbe A. Hearst of San Francisco became interested in this phase of the Museum's investigation in the Southwest and liberally coöperated in the plan. Thus strengthened the Hyde Expedition was enabled to carry on the work on a greater scale than otherwise would have been possible.

Mr. Pepper first went to Española and from there visited the pueblos of Santa Clara, San Ildefonso, Pojoaque, Nambe and Tesuque. One of the ceremonial dances at the pueblo of Santa

Clara was witnessed. San Juan, Picoris and Tesuque next received attention. After this work was completed, the Hopi region was visited, the time selected being the occasion of the Antelope and Snake dances at Walpi. In the pueblos of Hano, Sichomavi and Walpi, special attention was devoted to the work of the Hopi potters, particularly Nampayo of Hano, who is the only one living that has made a careful study of the old pigments and clays.

On the second Mesa the pueblos of Mashongnavi and Shungopavi were visited, and the Snake Dance at Mashongnavi observed. Oraibi, the seventh of the Hopi pueblos, situated fifteen miles to the west of the second Mesa, came next. During the stay in this pueblo the wonderful Flute ceremony was enacted. From the Hopi region the route taken led to the pueblo of Laguna in the western part of New Mexico, and from there to Acoma, where the Fiesta de San Esteban was seen. While in the pueblo of Isleta the Fiesta de San Augustine took place.

Visits to the pueblos of Jemez, Zia, Santa Ana, Ranchitas de Santa Ana, Sandia, San Felipe, Santo Domingo, Cochiti and Zuñi completed the season's work, which included all of the twenty-six "mother pueblos," now inhabited.

The subject of primitive pottery-making as represented in the various groups was carefully considered and the technique of each culture was investigated. Samples of the materials used in the manufacture of pottery were obtained as well as representative forms of finished vessels from each pottery-making pueblo. Nearly one thousand negatives were made to supplement the field notes, and to enhance the value of the exhaustive card catalogue pertaining to Southwestern ceramics, which is now in the course of preparation. The laboratory work is now progressing, and when the vessels have been catalogued and photographed, the set will be divided among the three contributors to the expedition.

THE EXHIBIT OF CHUKCHEE CLOTHING.

THE Chukchee of Eastern Siberia are divided into two well-marked groups, the Maritime, who live along the coast, and the Reindeer, whose home is in the interior. The mode of life of the two branches offers certain striking differences. For both divisions the climate is hard and the cold in winter extreme, and even in summer the thermometer seldom rises above 45° F. The clothing of both branches is devised with special reference to protection against the extreme cold and the driving winds, and at the same time to allow freedom of movement in the active life which the people lead.

The Reindeer Chukchee, having better skins and furs at their disposal, have developed the winter clothing to a much higher point than their Maritime relatives, while with regard to summer clothing the contrary is the case. Through barter each division has obtained from the other its best kinds of garments, and as a consequence the general character of the clothing worn by the two divisions is the same. All kinds are in the collection.

The chief material used is reindeer skin, that from fawns in the late summer being preferred. This is prepared by tanning or scraping. Sealskin is also used, the preparation being the same. Waterproof suits of the intestines of walrus and seal are also worn in summer, an idea which has been borrowed from the Eskimo. Cloth obtained from American whalers and Russian traders is made into outside garments as a special protection against wind and snow.

The Chukchee man's clothing is very practical, and the cut and style have been adopted by all the neighboring tribes. The suit consists of hood, coat, trousers, boots and mittens of reindeer skin. The coat is a loose, double garment with fur both inside and out. The garment is really two coats, one fitting closely inside the other, which are not fastened together, but can be quickly separated and dried. The double coat is put on over the head, and the neck opening is drawn close with a string. The sleeves are tight at the wrist and very loose at the shoulder, and the skirts are ample. The coat thus permits very free use of the arms and body, and can be slipped on and off easily and quickly.

CHUKCHEE MAN, SHOWING WINTER CLOTHING

The trousers are made from the skin of the legs of the reindeer, the hair being directed downward so as to shed the snow readily. They are held about the body by a string.

The boots are also of skin, and the soles are made of fur taken from the feet of the reindeer, which is coarse and tough and durable. Stockings of lighter fur are worn. Grass insoles are often placed inside the boots. The boot-legs are slipped under the trousers, which are then tightened about the ankles.

Mittens, likewise of reindeer skin, are made with the hair running up the hand to give a better grip. The wrists of the mittens are slipped inside the sleeves of the coat.

The Chukchee woman's dress is by no means as practical as that of the man. It consists of coat and trousers to the knee in one piece, and is drawn on over the feet through the neck-opening. The sleeves are wide and open, and the neck is cut low, both back and front, affording little protection against the cold. The legs of the suit are loose and baggy. Stockings of reindeer skin are worn, which are thick and bulky about the calves. In order to protect themselves further the women wear overcoats and capes about the shoulders.

Caps as well as hoods are worn by both sexes. They are made of the leg skins of reindeer, dogs and wolves. Some caps, especially those worn by herdsmen and runners, are open at the top. Sometimes the people wear ear-flaps made of thin skin.

Children wear a complete combination suit of fur with a flap which covers the buttocks and is passed between the legs and fastened in front. A pad of moss and reindeer hair is placed beneath this flap to absorb moisture. For purposes of warmth the opening for the hand is not placed at the end of the sleeve, but on the side.

The summer clothing in general is the same in cut and style as that for winter, except that only one thickness of skin is used. Summer boots are made of light sealskin, scraped and smoked. Their cut differs from those of winter and suggests an Eskimo origin. Sometimes the cast-off winter clothing is worn in summer, which tends to give the people a shabby appearance then.

GIANT SPIDER CRAB FROM JAPAN

THE GIANT SPIDER CRAB.

THE Department of Invertebrate Zoölogy has recently placed on exhibition in the Synoptic Hall (No. 107) on the ground floor of the Museum a fine specimen of the largest of all Crustaceans, the Giant Spider Crab, *Kæmpferia* (*Macrocheira*) *kæmpferi* de Haan, which measures somewhat over 12 feet between the tips of its outstretched claws. This animal is known to occur to a depth of over 2000 feet in the seas off the coast of

Japan. The largest specimen in any collection is said to be that in the British Museum. It has a spread of 18 feet. Even larger specimens are, however, occasionally captured. One is recorded to have had a spread of 22 feet. The specimen in the American Museum is from Miura-Misaki and was secured by Professor Bashford Dean of Columbia University.

EOCENE FOSSIL MAMMALS OF SOUTH AMERICA.

A SERIES of casts of South American fossil mammals of the Eocene epoch has been presented to the American Museum through the courtesy of Dr. Florentino Ameghino, Director of the Museo Nacional at Buenos Aires, Argentina. The rare fossils forming the originals of these casts have only recently been discovered, and all the specimens are in the museums of the Argentine Republic. During Eocene time South America was an island-continent, or perhaps divided into two great islands, and its animals at that epoch were almost as different from those of the rest of the world as those of Australia are to-day. Some of them are considered by Dr. Ameghino to represent very early stages in the ancestry of the elephants; others are ancestors of the fossil mammals of later epochs in the same region, of which the American Museum has a large collection. The casts are exhibited in the South American Alcove in the Fossil Mammal Hall.

NEWS NOTES.

THE Department of Invertebrate Zoölogy is placing on exhibition in the Synoptic Hall (No. 107) a collection of Protozoa illustrated by actual specimens and enlarged modes of typical forms. The actual specimens, to be viewed by the visitor through microscopes mounted in the cases for this special purpose, have been prepared for the Museum by Dr. Gary N. Calkins of Columbia University. The series includes beautiful preparations of well-known animalcules like the Amœba, Paramœcium, Vorticella, Peridinium, etc. Dr. Calkins will complete the

series with a set of pathogenic organisms such as the smallpox organism (*Cytoryctes variolæ*) and the malarial organism (*Plasmodium malariæ*). The enlarged models, in glass and wax, have been skilfully prepared by Dr. Dahlgren. Those of the Radiolarians and Foraminifera are nearly completed.

AMONG noted recent visitors to the Museum may be mentioned the Moseley Educational Commission, comprising more than thirty of the prominent educators of Great Britain, which came in force to examine the building, its halls, and the collections exhibited therein, for the purpose of comparing this museum with those in the British Isles. Mr. Moseley ordered from the Department of Public Instruction one hundred lantern slides illustrating this museum and the schools, academies and universities of the State of New York, and their use by classes of pupils. These slides are to be used by the members of the commission in their lectures in Great Britain on the subject of education and educational facilities in the United States.

DR. T. STORIE DIXSON, a trustee of the Australian Museum at Sydney, New South Wales, visited the Museum during November in the course of a tour around the world for the purpose of learning what is being done by museums in general for the education of the people. Dr. Dixson made a thorough inspection of the special educational features here and ordered a series of lantern slides representing the country from Honolulu to New York City and including a full set illustrating this museum.

THE Department of Public Instruction has issued a series of slides illustrating native and ornamental trees. The set consists of seventy-eight views, beginning with the forests of the Adirondack region and ending with the specimens of the Jesup Collection of North American Forestry in the Museum. Some of the more familiar species are illustrated by views of the trees at different stages of growth, the leaf, the trunk, the flower and the fruit.

PROFESSOR VICTOR GOLDSCHMIDT, professor of crystallography in the University of Heidelberg, Germany, spent an afternoon

recently in close examination of the crystallographic treasures in the mineral collection of the Museum.

THE value of the biograph for use in illustrating lectures upon natural-history topics was demonstrated to the scientific staff one afternoon by an exhibition of rolls of pictures of large and small animals and of microscopic preparations. Among the subjects were the culture of bees, life in aquaria and the circulation of blood in living tissues.

FOUR series of fine skulls and antlers of newly described caribou have been mounted and placed on exhibition on the walls of the east corridor near the halls of mammalogy.

ON Thanksgiving Day a special exhibit was made in the central hall of the main floor showing the different kinds of game birds which are used in connection with Thanksgiving feasts in different parts of the country. The largest and most striking of these of course was the wild turkey, the progenitor of the familiar domesticated fowl. An interesting and little-known fact was brought out upon the label accompanying this exhibit, which was that the turkey, although a native of Mexico, and unknown in Europe before the time of Columbus, was imported into the northern part of the United States from Europe. The supposed origin of the fowl is indicated in its name "Turkey." In other parts of the world, other places of origin are indicated by local names, as, for instance, in France, where the name "Dinde" indicates that the people first supposed the bird to be a native of India.

THE late Homer F. Bassett of Waterbury, Conn., was one of the best-known authorities in the world on the Cynipidæ or Gall-Insects. In the course of his studies he assembled a large collection which was remarkable for the variety and perfection of its specimens. Mrs. Margaret D. Bassett, his widow, has recently given to the Museum the duplicates from this celebrated collection. The material presented contains several thousand specimens of Galls and Gall-Insects, including the types of 68 species described by Mr. Bassett.

THE Museum has had occasion recently to ascertain the size attained by the horn of the narwhal. The largest of the specimens in its possession is eight feet two inches in length and weighs fourteen pounds. We should be glad to learn the size of specimens held by other museums.

THERE have been added to the collections of the Department of Mineralogy more than 800 specimens of the minerals which occur in the trap rocks of New Jersey. These were collected from the rock taken from the Weehawken Tunnel, and were presented to the Museum by Mr. George W. Talson. The series consists of specimens of calcite, datolite and several zeolites. An exhibition series has been selected from the lot and the remainder is available for the exchange and school suites.

A STRIKING specimen of quartz from Alexander County, North Carolina, is the gift of the American Gem Company through Mr. Lucien Zell. The specimen is a composite crystal consisting of parallel growths of smaller crystals made up of the prism and the pyramid. Many of the component small crystals stand out in high relief. The specimen is about 20 inches across.

THROUGH exchange the mineral collection has been enriched by a beautiful group of chalcedonized turritellas, and a specimen of the cylindrical beryl from Orijarvi, Finland, showing about 18 faces. Other noteworthy additions to the cases are the largest apophyllite which has been found at West Paterson, New Jersey, and a rare specimen of paramelaconite, from Bisbee, Arizona.

SOME of the specimens in the collection of shells have been made the subject of an interesting investigation by Messrs. Coleman and Handich, who have been studying the mathematical nature of the spirals of shells.

THE DEPARTMENT OF GEOLOGY has recently placed on exhibition a series of fossil corals and shells from the Falls of the Ohio, and other localities in Indiana; also a fine lot of crinoids from the noted beds at Crawfordsville, Ind. (see case N), and a

considerable series of the shells of *Haploscapha grandis*, Conrad, echinoderms and other fossils from the Cretaceous beds of Kansas, which were received at the Museum with the second Cope Collection. *Haploscapha* belongs to an entirely extinct form of shell. It usually is classed with *Inoceramus* which was one of the most abundant and characteristic forms in the Cretaceous seas.

THE WARD-COONLEY collection of meteorites which is on deposit at the Museum was re-arranged and many additions were made during the month of November. The collection now represents 598 falls and finds, which places it at the head of the list of such collections in point of numbers.

AMONG the gifts recently received from the New York Zoölogical Society are specimens of the following snakes: Bush-Master, Anaconda, Water Moccasin, Texas Rattler, Diamond-Back Rattler, Black, Viper and Gopher. These have been mounted and placed on exhibition.

LECTURES.

MEMBERS COURSE

THE Thursday evening Lectures to Members began in November with the following programme for the first course of the season:

November 12.—Dr. EDMUND OTIS HOVEY, "Mont Pelé and the Destruction of St. Pierre."

November 19.—Prof. ALBERT S. BICKMORE, "The Development of New York City."

December 3.—Prof. ALBERT S. BICKMORE, "Niagara."

December 10.—Prof. ALBERT S. BICKMORE, "Germany: Berlin."

December 17.—Prof. ALBERT S. BICKMORE, "Germany: Potsdam."

January 7.—Prof. HENRY F. OSBORN, "The Evolution of the Horse."

January 14.—Mr. FRANK M. CHAPMAN, "Island Bird Life."

January 21.—Prof. WILLIAM MORTON WHEELER, "Mimicry and Protective Coloring in Animals."

The programme for the second course is:

January 28.—Prof. FRANZ BOAS, "The Scientific Results of the Jesup North Pacific Expedition."

February 4.—Mr. George H. Pepper, "The Navajo and other Blanket-Makers of the Southwest."

February 11.—Mr. A. F. BANDELIER, "The Island of Titicaca."

February 18.—Prof. LIVINGSTON FARRAND, "The Work of the American Museum among the Indians of California."

February 25.—Mr. ANDREW J. STONE, "Collecting Large Arctic Mammals."

March 3.—Prof. ALBERT S. BICKMORE, "Holland: Amsterdam and Haarlem."

March 10.—Prof. ALBERT S. BICKMORE, "Holland: Rotterdam and The Hague."

March 17.—Prof. ALBERT S. BICKMORE, "Belgium: Antwerp and Bruges."

March 24.—Prof. ALBERT S. BICKMORE, "Belgium: Brussels and Waterloo."

TEACHERS COURSE

THE next course of Lectures to Teachers will be given by Prof. Albert S. Bickmore Saturday mornings, in accordance with the following programme:

January 23 and 30.—Holland: Amsterdam and Haarlem.

February 6 and 13.—Holland: Rotterdam and The Hague.

February 20 and 27.—Belgium: Antwerp and Bruges.

March 5 and 12.—Belgium: Brussels and Waterloo.

LEGAL HOLIDAY COURSE

THE lectures in this course are by members of the scientific staff of the Museum and are open to the public. No tickets are required for admittance. Five of the lectures have been given, but two remain to be delivered.

Labor Day, September 7, 1903.—Mr. FRANK M. CHAPMAN, "Bird Life about New York City."

Election Day, November 3, 1903.—Mr. GEORGE H. PEPPER, "Life among the Navajo Indians."

Thanksgiving Day, November 26, 1903.—Prof. ALBERT S. BICKMORE, "The Development of New York City."

Christmas, December 25, 1903.—Prof. ALBERT S. BICKMORE, "Germany: Berlin and Dresden."

New Year's, January 1, 1904.—Prof. ALBERT S. BICKMORE, "Niagara Falls."

Lincoln's Birthday, February 12, 1904.—Dr. EDMUND OTIS HOVEY, "Mont Pelé and the Destruction of St. Pierre."

Washington's Birthday, February 22, 1904.—Prof. ALBERT S. BICKMORE, "Holland: Amsterdam and Haarlem."

PUBLIC-SCHOOL COURSE.

THE lectures to the general public, provided for through co-operation with the City Board of Education, will continue throughout January, February and March, in accordance with programmes which are to be obtained at the entrance.

MEETINGS OF SOCIETIES.

THE programme for the meetings of the New York Academy of Sciences in January, February and March is:

First Mondays, Section of Astronomy, Physics and Chemistry

Second Mondays, Section of Biology.

Third Mondays, Section of Geology and Mineralogy.

Fourth Mondays, Section of Anthropology and Psychology.

All these meetings are held in the Museum and the public is invited to attend them.

THE Linnæan Society holds its regular meetings at the Museum on the second and fourth Tuesdays of each month, while the Entomological Society meets on the first and third Tuesdays.

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The American Museum Journal

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A GENERAL GUIDE TO THE AMERICAN MUSEUM OF NATURAL HISTORY *Supplement*

The Knickerbocker Press, New York

AMERICAN MUSEUM OF NATURAL HISTORY

A General Guide to the American Museum of Natural History

SUPPLEMENT TO AMERICAN MUSEUM JOURNAL
VOL. IV, No. 1, JANUARY, 1904
Guide Leaflet No. 13

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THE AMERICAN MUSEUM OF NATURAL HISTORY was established in 1869 to promote the Natural Sciences and to diffuse a general knowledge of them among the people, and it is in cordial coöperation with all similar institutions throughout the world. Since the Museum authorities are dependent upon private subscriptions and the dues from the members for procuring needed additions to the collections and for carrying on explorations in America and other parts of the world, the attention of persons interested in such matters is called to the brief statement of deeds and needs on the fourth page of the cover of this Leaflet.

The Museum is open free to the public on Wednesdays, Thursdays, Fridays, Saturdays and Sundays. Admittance is free to Members every day.

COMPLIMENTS OF

AMERICAN MUSEUM OF NATURAL HISTORY

THE AMERICAN MUSEUM OF NATURAL HISTORY : SOUTH FAÇADE

Frontispiece

A

GENERAL GUIDE

TO THE

AMERICAN MUSEUM

OF

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Guide Leaflet No. 13

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HISTORICAL NOTE.

THE American Museum of Natural History dates its official history from April 6, 1869, when the State Legislature at Albany passed an act creating "a body corporate, by the name of 'The American Museum of Natural History,' to be located in the city of New York, for the purpose of establishing and maintaining in said city a Museum and Library of Natural History; of encouraging and developing the study of Natural Science; of advancing the general knowledge of kindred subjects, and to that end of furnishing popular instruction and recreation." This legislation was the outgrowth of an agitation which extended over several years and which finally culminated through the opportunity presented the preceding year (1868) of purchasing the Elliot collection of North American birds and the Maximilian and Verreaux collections of birds and mammals. Among other fundamental collections of the Museum may be mentioned those in entomology presented by Baron R. Osten-Sacken and Mr. Coleman T. Robinson.

The first home of the Museum was in the Arsenal building in Central Park near Sixty-fourth Street, but the building was old and entirely unsuited to the purposes of a great museum and steps were taken at once looking to the erection by the city of a fireproof structure, expressly for the housing and proper exhibition of the collections. That part of Central Park known as Manhattan Square was set apart by statute for the accommodation of the building and on June 2, 1874, President Grant laid the corner-stone of the first section of the great structure which is eventually to occupy the whole of the eighteen-acre plot bounded by Central Park West, West Seventy-seventh Street, Columbus Avenue and West Eighty-first Street. Three years later this wing was opened to the public.

The first president of the institution was Mr. John David Wolfe. His term of office was short, 1869–1871, being terminated by his death only a few months after the opening of the exhibition halls in the old Arsenal building. Mr. Wolfe was succeeded by Mr. Robert L. Stuart, who held the presidency from 1871 to 1881, when failing health compelled him to resign. Two events signalized this period: the occupancy of the first section of the building in Manhattan Square, and the purchase of the James Hall Collection of Geology and Palæontology. The presidency of Mr. Morris K. Jesup began in 1881 and

has seen the Museum develop into an institution of more than national importance and of world-wide influence. During the first year of his incumbency, Mr. Jesup donated the collection of North American Woods and established the Bulletin, a medium for the publication of the scientific work of the institution which is now in its twentieth volume.

Other features of the past twenty-three years have been the establishment of the Department of Public Instruction in 1885 through coöperation with the State; the establishment of the Department of Vertebrate Palæontology in 1891 through Professor Henry F. Osborn; extensive explorations among the ancient ruins of Peru and South America, begun through the generosity of the late Mr. Henry Villard; the presentation by Mr. J. Pierpont Morgan of the Tiffany gem collections and the Bement Mineral Collection; the provision by the Duke of Loubat of the means for the collection and acquisition of the archæological series from Mexico and Central America, and the inauguration of the Jesup North Pacific Expedition. This period, furthermore, has witnessed the erection by the City of the entire imposing south façade of the building as originally projected.

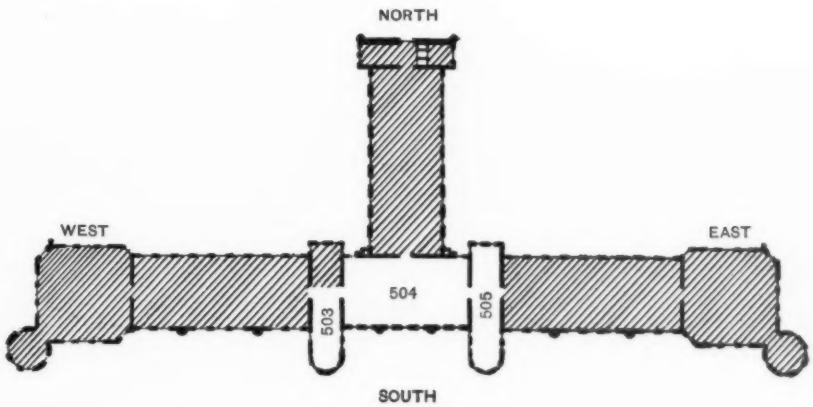
E. O. Hovey,
Editor.

NOTE.—It is suggested that visitors take the elevator to the top (fifth) floor and then descend from floor to floor at their leisure. Frequent reference to the diagrams will prevent confusion.

THE READING-ROOM. NO. 503

GENERAL GUIDE

FIFTH FLOOR

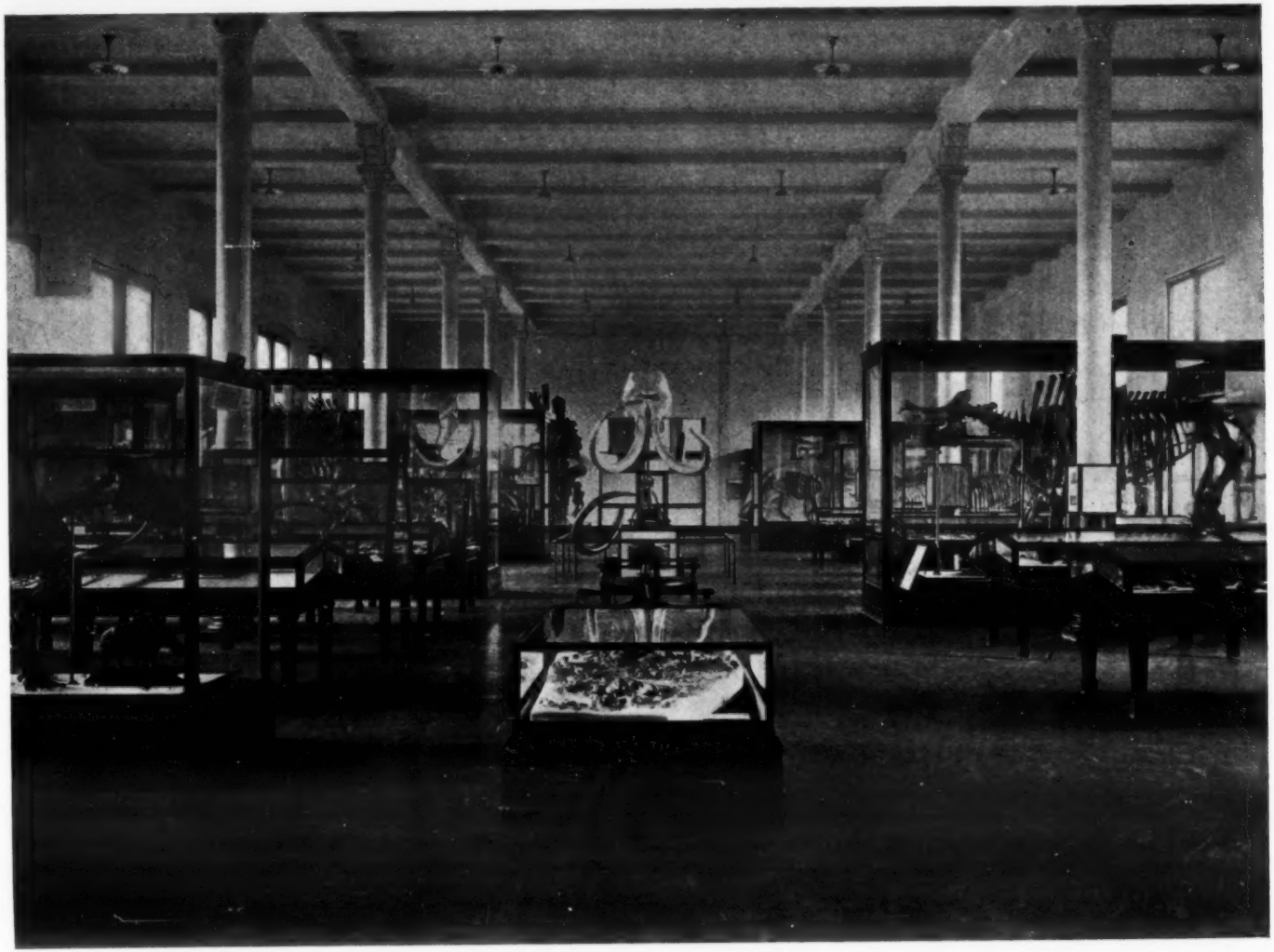


This floor is largely occupied by offices, laboratories etc., in use by the members of the administrative and scientific staff. (In the diagram these rooms are cross-lined.)

The Shell Hall (No. 504) contains the following collections: A general collection illustrating systematic conchology comprising the combined Jay-Wolfe (1873), Haines (1895) and Crooke (1893) Collections. The D. Jackson Steward Collection, presented in 1890, illustrates the Lamarckian system of classification. The material in this hall is fully labeled. **Collection of Shells.**

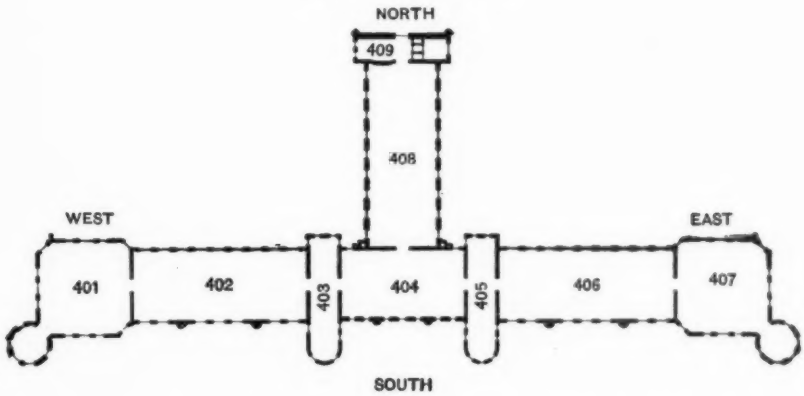
The Museum Library and Reading-Room (No. 503) is entered from the western end of the Shell Hall. Here will be found about 50,000 volumes on natural history subjects and a comprehensive selection of the current scientific journals. The Library is open to the public. **Library and Reading Room.**

The visitor should now return through the Shell Hall and descend to the floor below.



HALL OF FOSSIL MAMMALS. NO 406

FOURTH FLOOR



The visitor now finds himself in the Marine Reptile Corridor (No. 405) on the walls of which are displayed several remarkable fossils. The largest of these is of a Mosasaur, a huge marine lizard, 30 feet in length. On the easterly wall are several Ichthyosaurs; one of these will be seen to be accompanied with young. **Fossil Reptiles.**

The Anighito meteorite, weighing more than 6,000 pounds, is temporarily installed in this corridor.

Passing now towards the east, one enters the Hall of Fossil Mammals (No. 406). The general arrangement of this hall is on the "alcove plan." The collections of the department include the famous Cope Collection. Along the north side are groups of fossils illustrating among other forms the origin and development of Primitive Hoofed Mammals, Carnivores, Mastodons, Elephants and Even-toed Hoofed Mammals. Along the south side the Titanotheres, Rhinoceroses and Horses receive special treatment. Watercolor restorations show the supposed appearance in life of some of these remarkable animals. The specimens are elaborately labeled and there are special Guide Leaflets, "The Collection of Fossil Vertebrates" and "The Evolution of the Horse," which may be borrowed or purchased of the attendant. **Fossil Mammals.**

MORGAN HALL OF MINERALOGY. NO. 404

Turning to the west and again passing through the Reptile Corridor one enters a stately room (No. 404) devoted to minerals and in recognition of Mr. J. Pierpont Morgan's many gifts to the Museum named the Morgan Hall. Here are the Bement Collection of minerals and meteorites, certain splendid crystal groups from various donors and the cabinet of the New York Mineralogical Club. There is a special guide for this hall. Copies will be found attached to the cases and they may be purchased of the attendant. **Mineral Collection.**

The specimens in the table cases have been arranged strictly in accordance with the sixth edition of Dana's *System of Mineralogy*. The beginning of the series is in the southeast corner of the hall. The Sulphur specimens (Cases 1, F and J) arrest attention on account of their beauty and their strikingly perfect crystallization. Particularly choice are the specimens of Gold (Case 1). The mineral is shown here in sheets like rolled metal; in plates with crystalline edges; in matted filaments consisting of minute octahedra; in grouped octahedra with hollow faces, and in twisted plates attached to quartz. Copper is another native element which occurs in fine crystals (see Case 1). Among the sulphides (Cases 1, 2 and A) Stibnite, the sulphide of antimony, Galenite, the sulphide of lead, and Sphalerite, the sulphide of zinc, are valuable ores and at the same time beautifully crystallized minerals. Pyrite (Cases 2 and C), the sulphide of iron, is a very common species which is prized in every exhibition collection on account of its showy brilliant cubes, dodecahedra and other crystal forms. Fluorite (Cases 3 and 4), Quartz (Cases 4, 5, H,P), the Iron Ores (Cases 6 and 7), Calcite, Malachite and Azurite (Cases 8, 9, 10, I, J), Beryl, including Emerald and Aquamarine (Case 12), Tourmaline (Cases 15, 16 and K), Barite (Cases 23, Q) and Crocoite (Case 24) are among the specialties of the collection which should not escape the notice of the visitor.

This collection, which probably forms the best exhibition series of mineral specimens in the country, is almost entirely the gift of Mr. Morgan.

The Museum collection of meteorites, which is one of the largest in the country, has been placed temporarily in Cases 25 and 26. The collection contains many rarities. **Meteorites.**

The loan collection of the New York Mineralogical Club, containing a large proportion of the minerals which have been found on Manhattan Island and in the immediate vicinity, occupies Case 27. Case 28 (in the northeast corner of the hall) is devoted to several series introductory to the study of mineralogy, such as models of crystal forms and specimens to illustrate the exact meaning of the various descriptive terms used in the science.

To the west lies the Gem Room (No. 403). The gem collection consists of the exhibits made by the Tiffany Company at the Universal Expositions held at Paris in the years 1889 and 1900. It was given to the Museum by Mr. Morgan, who frequently adds to the collection. Especially noteworthy are the series of Corundums (Sapphires), Topazes, Beryls, Garnets and Tourmalines. These show a variety in color and tone that is not generally familiar to the public. Uncut gem materials and crystals are exhibited in connection with the gems. Observe the assemblage of cut and carved semi-precious stones, such as Rhodonite, Jadeite and Jade, and several forms of Quartz, especially Rock-crystal and Amethyst. Several masses of Amethyst are among the most remarkable that have been found. The Morgan Collection of gold coins of the United States is here, containing a nearly complete series of the issues from the Philadelphia mint.

Gems and Gem Material.

The Copper Queen case exhibits a wonderful series of specimens donated by the Copper Queen Consolidated Mining Company from their mines at Bisbee, Arizona. Note especially the large specimens of "velvet" and ordinary Malachite and Azurite, the green and blue carbonates of copper which for many years formed the sole ores of the mine.

Copper Queen Collection.

Continuing toward the west the visitor next enters the hall of Mexican and Central American Archæology (No. 402), known as the Loubat Hall, on account of the preponderance of material presented to the Museum by the Duke of Loubat.

The key-diagram at the east entrance will assist the visitor in orienting himself in regard to the hall.

The collections have been arranged so as to illustrate the several "cultures" of the region. The word "culture" is used to comprise all the items which go to make up the general life of a people or a race. Filling the eastern portion of the hall are casts and collections, partly from Copan, showing many features of the life of the ancient Mayas, while the west central portion of the room is occupied by the collections from the neighborhood of the City of Mexico which show the culture of the ancient Aztec or Nahua race. The casts of the so-called Calendar or Sacrificial stones are of popular interest, and the ancient codices, or pre-Columbian charts or books, are worthy of special study. Cases illustrating the old Tarascan, Mixtecan-Zapotecan and Costa Rican cultures are in the northwest, southwest and southeast corners of the room respectively. One of the most remarkable single specimens in the room is a life-size terra cotta human figure which was found in a cave near the city of Texcoco, Mexico, and which seems to be the portrait statue of some great war chief of the prehistoric Alcolhuan tribe. The specimen indicates that this ancient people had carried the art of working in clay to a high degree of perfection. The collection is particularly rich in objects made from jadeite, gold and copper, and in ceramics. The major portion of the exhibits in this room consists of casts of the carved stelæ and other stone monuments found throughout the region. Among the most celebrated of these is the huge Turtle Stone. The meaning of the emblems and inscriptions carved upon this and other stones has been but partly determined.

Mexican and Central American Archæology.

Casts of two stelæ from the ruins of Quirigua, Guatemala, are in Hall No. 202 (second floor), on account of their height.

Hall No. 401 not yet being open to the public the visitor should retrace his steps, pass to the middle of Morgan Hall and then enter the Hall of Geology (No. 408).

The rocks and fossils displayed in this room illustrate in general the geology of North America and Europe and in particular the geology of New York State. The oldest rocks will be found in the northeast corner and the succession of rocks

LOUBAT HALL OF MEXICAN AND CENTRAL AMERICAN ARCHÆOLOGY. NO. 402

and their contained organic remains ("fossils") may be followed by examining the cases along the east, south and west sides respectively. The specimens in the desk cases along the center of the hall correspond as nearly as practicable to the neighboring alcove cases. The classification of the collection is first according to the great sub-divisions of geologic time, then according to geographic provinces and finally according to the principal biologic groups represented. The European fossils are arranged in the northwestern quarter of the hall.

Geology and Invertebrate Palæontology.

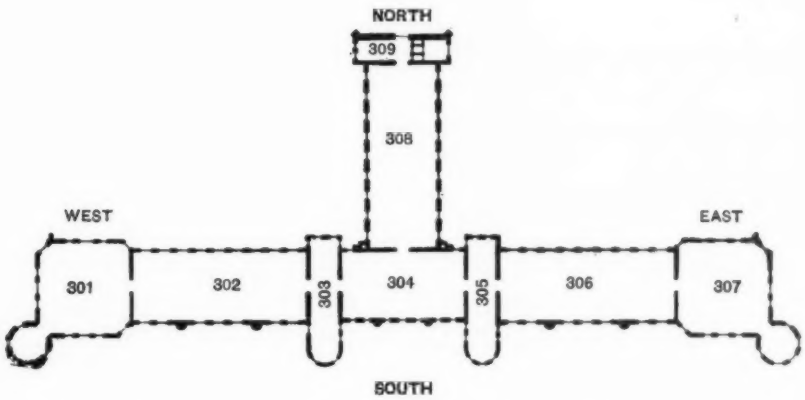
The prominent feature of the collection is the great series of types and figured specimens which it contains. There are here 8,345 such specimens representing 2,721 species and 190 varieties. Three-fourths of these are from rocks of Palæozoic age. The foundation of the whole exhibit is the famous James Hall Collection of fossils and rocks from New York and corresponding western strata which was purchased by the Museum in 1875.

In the northern part of the center of the room the Ward-Coonley Collection of meteorites is temporarily installed. This contains representatives of about 600 falls and finds, and is the largest and most important collection in the country.

Returning through the geological and mineralogical halls to the Reptile Corridor (No. 405) we descend to the floor below.

HALL OF GEOLOGY AND MINERALOGY. NO. 408

THIRD FLOOR



The corridor (No. 305) contains the Osprey Group. The birds, nest and accessories forming this group were obtained on Gardiner's Island, where exists the largest colony of Ospreys or Fish Hawks known within 100 miles of New York City.

Turning now to the east the visitor finds himself in Hall No. 306 which is devoted to mammals and insects. The mammals installed in this hall are mostly Old World ungulates, marsupials and edentates. **Mammals.**

The cases along the top of the gallery railing are devoted to insects. At the right (south) is part of the general collection of Butterflies. Silkworm Moths, Cecropia and other moths are directly in front of the entrance. One case contains specimens illustrating the protective coloration of insects. The next case shows protective mimicry. Among the Beetles particular attention will be attracted by the Longhorns or Cerambycidæ, the Leafhorns or Scarabæidæ (among which are the Hercules Beetles from the West Indies, Mexico and Africa), the Staghorns or Lucanidæ, and the Sawhorns or Buprestidæ. The last have wing-cases which are remarkable for their green iridescent colors. **Insects.**

TERMITE NEST, THREE FEET HIGH. IN HALL NO. 307

The next hall to the east (No. 307) is devoted entirely to Entomology. At the entrance is a large case containing specimens of Termites' nests from Colombia, Jamaica and the Bahamas. Owing to their resemblance in appearance and in habits to ants, Termites are often incorrectly called "White Ants." They are found in the warmer parts of the world and are both useful and injurious. In uninhabited districts they feed mostly on dead wood, and are the means of clearing the forests of decayed trees. **Insects.**

At the north of the entrance is the Jesup Collection of Economic Entomology, illustrating the life history of insects injurious to timber and shade trees. Each exhibit consists of the leaves or other affected parts of the tree, together with the chrysalis, the larva and the adult of the species. Each is accompanied by a descriptive label. **Jesup Collection.**

This hall contains the collection of butterflies of America north of Mexico, and from other parts of the world, which was donated to the Museum by the late Very Rev. E. A Hoffman. It contains about 2,000 species, represented by more than 5,000 specimens from Mexico, Central and South America, India, Malay Islands, Australia, Japan, Africa and Europe. The North American butterflies are installed in four cases along the west side of the hall, and nearly all the species found in this country are represented. Among the most noteworthy species in the general series of the collection are the Brilliant Blue Morphos, Owl-faced Butterflies (*Caligo*), the Swallowtails (*Papilio*) and the Citron, Orange, Lemon and White Butterflies belonging to the family Pieridæ. A beautiful example of *Papilio homerus* from Jamaica, B. W. I., and one of *Dynastor napoléon* from Rio Janeiro, Brazil, as well as many other rarities, are in the collection. **Hoffman Butterflies.**

The railing-cases of the gallery are filled with a collection of insects from New York City and vicinity. Passing to the left from the entrance the visitor sees in sequence the galls and their insects, the Bees (Hymenoptera), the Dragonflies (Neuroptera), the Grasshoppers (Orthoptera), the Beetles (Coleoptera) in extensive series, and the Butterflies and Moths (Lepidoptera). Guide Leaflets to the Butterflies (No. 7) **Local Insects.**

and to the Hawk Moths (No. 10) have been issued, copies of which may be borrowed or purchased from the attendant.

Having now completed his survey of the exhibits in the East Wing the visitor will retrace his steps through Halls No. 307, 306 and 305 and enter the Central Hall (No. 304) where he may continue his study of the collections of mammals and birds.

Mammals.

The main portion of this hall is devoted to the collection of Monkeys, Lemurs, Bats and Rodents. Special popular interest centers around Case C, which is devoted to the group representing a family of Borneo Orang Utans in the tops of durio trees, and around Case F, which contains the gorilla and the well known chimpanzees which in life went by the names of "Mr. Crowley," "Kitty Banana" and "Chico."

Some small bird groups are here: Scarlet Tanager, Wilson's Phalarope, Red-winged Blackbird, Water Ousel or Dipper.

The case in the southwest corner of this hall contains temporarily specimens of fish and reptiles, including a 24-foot python.

Visitors are recommended now to pass into the North Wing, Hall No. 308, which is devoted to the Birds of North America.

Birds of North America.

The upright cases in this hall contain the series of specimens illustrating the bird-life of the continent, arranged according to the generally received classification, which is that of the American Ornithologists' Union. Study of this room should begin at the right of the south entrance. The general order of sequence is that the water birds precede the land birds. There are many groups in this hall showing birds in their natural surroundings, as nearly as practicable. At the south entrance is the group of Coot (Mud Hen) and Yellow-headed Blackbird; then at the right is the large Cobb's Island group showing the bird-life of the beaches of the Virginia coast. Six species of beach-breeding birds are represented. In the alcoves along the right (east) side of the hall are eleven small

25 THE GROUP OF BEACH-BREEDING BIRDS OF COBB'S ISLAND. IN NORTH AMERICAN BIRD HALL, NO. 308

groups illustrating the nesting habits of common local birds, such as: the Catbird, Oriole, Humming Bird, Sparrow etc. At the west of the south entrance one finds the large Bird Rock group showing seven species of sea birds as they nest on the rocks forming Bird Rock Island in the Gulf of St. Lawrence. Guide Leaflet No. 1 contains a full description of the Bird Rock group. It will be found attached to the case or copies may be purchased from the attendant. In the alcoves along the west side of the room are sixteen groups illustrating the Robin, Thrush, Vireo, Warbler, Sparrow etc. At the north entrance is the Passenger Pigeon group, representing a bird which man himself has rendered almost extinct within twenty years.

Local Birds.

Returning through this hall and the Central Hall (No. 304) the visitor will find in the West Corridor (Hall No. 303) the collection of the birds occurring in the vicinity of New York City. Of special interest is the Seasonal Collection, which is arranged around the south end. One of the cases contains a series to illustrate the bird-life of the current month. Series of bills, tarsi, feet, wings, tails and feathers form an exhibit illustrating and defining in graphic manner the technical terms used in descriptive ornithology. A guide to the local collection will be found attached to the cases or it may be purchased from the attendant.

Archæology of South America.

From this corridor one passes into Hall No. 302 of the West Wing, which is devoted to the Ethnology and Archæology of South America. The collections relate principally to the prehistoric peoples of Colombia, Bolivia and Peru, arranged along the right (north) side of the hall in the following order :

14 Chile
13 Charassani
12 Pelechuco
11 Illimani-Puno
10 Tiahuanaco
9 Huata
8 Copacabana
7 Sillustani
6 Cuzco
5 Coast of Peru
4 Cajamarca
3 Amazonas
2 Equador
1 Colombia

In each of the cases the specimens have been installed in order corresponding to the following diagram:

Animals. Warfare.	
Decorative Art. Amusement.	House Life (three shelves).
Modes of Personal	
Adornment (two shelves).	Industries (two shelves).
Religious and Other	
Ceremonials (two shelves).	Natural Products and Food.

DIAGRAM SHOWING THE DISPOSITION OF SPECIMENS IN EACH OF THE SYSTEMATIC EXHIBITS ILLUSTRATING THE CULTURE OF FOURTEEN LOCALITIES IN ANCIENT SOUTH AMERICA

Many gaps will be observed in these cases, but it is hoped that these will be filled by future acquisitions. Drawings will be found exhibited in connection with the collection which illustrate the manner of use of obscure objects.

Objects in Metal.

In the remainder of the hall the collections have been arranged so as to bring together all the specimens of the same material or character and thus to aid other lines of comparison. It should be remembered that these collections illustrate a culture that existed in this continent before the advent of the Europeans. One of the special collections contains a choice series of objects made from gold, silver and bronze, among which special attention will be attracted by the cup of beaten gold from Peru, the ornaments of cast gold from Colombia, images of human beings, llamas and other animals in hammered silver and a sea-shell inlaid with parrots cut from sheet silver. Other cases contain a wealth of copper implements. These comprise agricultural implements, bracelets and other personal ornaments, tweezers, battle axes etc. I-clamps of copper used for

fastening together the stones of a building are here. They were found in the prehistoric ruins of Tiahuanaco, Bolivia.

In the large case at the south of the east entrance there is a series of mummies and mummy-bundles illustrating the burial customs of the ancient Peruvians. The next upright case contains a unique series of skulls showing the various ways of deforming the head practised by the ancient Peruvians, and a still more remarkable series of trepanned skulls from the same region proving a high degree of surgical skill among these ancient people.

Mummies.

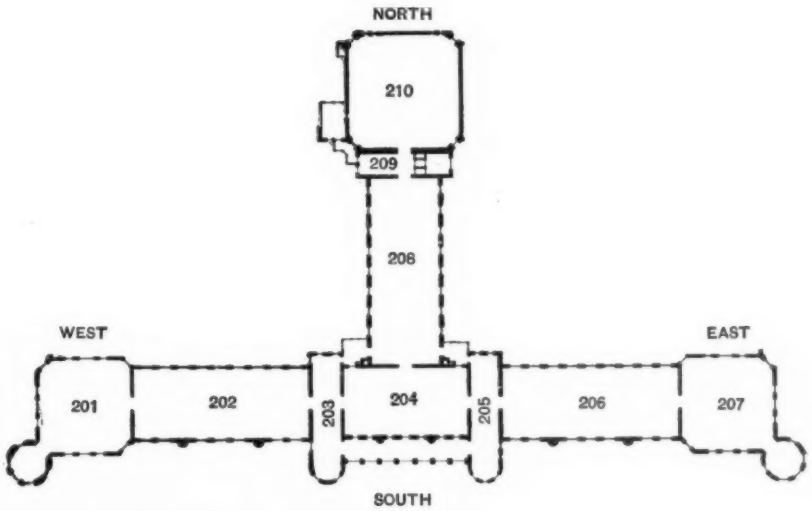
Another case displays the collection of musical instruments of the Incas. Guide Leaflet No. 11 describing this remarkable series is attached to the case for convenience of reference. It may be purchased of the attendant. The next case contains pottery representations of animals. These were made by the ancient Peruvians and illustrate more than fifty species. The southwest quarter of the hall contains cases illustrating the ethnology of Panama, Brazil and Paraguay. At the west end is a collection of prehistoric pottery in extensive series arranged according to its geographical distribution.

Musical Instruments; Pottery.

The corner hall (No. 301) of the West Wing contains the extensive collections made in China with the aid of funds provided by the Committee on East Asiatic Research. This hall is in process of arrangement and is not yet open to the public.

Return to the East Corridor (No. 305) and descend to the floor below. On the walls of the stairway are displayed a series of the antlers of several species of Caribou from the northern portion of the continent. They are typical of four species.

SECOND FLOOR



In the East Corridor (No. 205) of the second or main floor a fine head of the rather rare African Elephant is to be seen on the wall opposite the elevators. Turning to the east, the visitor finds himself in the Hall of North American Mammals (Hall No. 206). The principal exhibits in this room are the large central groups representing the Moose and the Bison or Buffalo. The Moose group pictures the animal as it is found in the forests of New Brunswick. It is the most elaborate group of its kind exhibited in any Museum. As one item of detail, it may be mentioned that twenty-two thousand artificial leaves enter into its composition. The Bison is one of the animals which man has rendered practically extinct within the last thirty years, hence this group is of especial importance.

Mammals of North America.

Some of the single specimens in this hall are particularly noteworthy, such as: the Walruses collected on the Peary Relief Expedition of 1895, showing a fine bull and a cow, the Elk, the Virginia Deer. The last two in particular are considered excellent examples of modeling. Guide Leaflet No. 5, entitled "North American Ruminants" describes in detail a portion of the collection placed in this hall. It may be borrowed or purchased of the attendant.

MAMMALS AND BIRDS. CENTRAL HALL, NO. 204

The visitor will now turn back from this room and continue his studies in the Central Hall (No. 204). The wall cases are devoted to the general collection of Mammals, and in the lobby are exhibited the skeletons of the elephants "Jumbo" and "Samson" and the mounted skin of the Central Park elephant "Tip." The group of the Spotted Hyena is a life-like representation of that beast of prey. The Fur Seal, the animal supplying the fur for sealskin garments, is represented by excellent specimens.

Mammals: General Collection.

In this hall there are several bird groups; among them the Brown Pelican, the Duck Hawk, the Red-shouldered Hawk and the Lesser Blue Heron may be mentioned.

The visitor should now pass into the North Wing (Hall No. 208), where he will find the general collection of birds. The series may be studied from the southeast corner as a starting point, where specimens of flightless birds are exhibited. The student should pass toward the north along the east side of the room and return along the west side. In general, the water birds come first and then the land species. The Museum collection of birds' eggs is very extensive. The portion on exhibition may be found in the east section of the hall. Among the numerous groups especial attention is called to those representing the Ptarmigan and the Labrador Duck. The Museum series of specimens of the Labrador Duck is one of the features of the collection. It contains seven of the forty-odd known specimens. Among the other great rarities in the collection is the specimen of the Great Auk. Only four such specimens are known to be in this country. The bird became extinct about sixty years ago.

Birds.

To the north of this hall is the entrance to the gallery of the large Lecture Hall (No. 210).

Retracing his steps through the Central Hall (No. 204), and turning to the west, the visitor finds himself in the West Corridor (No. 203), which contains the collection of mammals found in the vicinity of New York City. These species are represented by groups comprising the Opossum, Raccoon, Red Fox, Woodchuck and fourteen other familiar animals.

Local Mammals.

BIRD HALL. NORTH WING, NO. 208

Continuing to the westward, one enters Hall No. 202 of the West Wing. This hall contains the collections illustrating the culture of the Indian tribes of the southwestern part of the United States and of Mexico. The northeastern portion of the hall is occupied by collections from the Indians of California, tribes particularly interesting on account of their basketry. First come the baskets of the southern and central part of the State. The large wall case beside the entrance contains the larger specimens and also material illustrating the mode of manufacture. The "A" cases contain examples of beautiful weave and design. The Pomo, a tribe living near San Francisco, weave feathers into their baskets; each of the black tufts represents all that is used from a single bird (the Valley Quail). The culture of the Mutsun, the Maidu, the Shasta, the Wintun, the Pit River and the Yurok tribes is shown both by their baskets and by means of their implements of war, hunting and fishing.

Indians of California.

Beyond the California exhibit (*i. e.*, towards the west) are the collections showing the cultures of the tribes of Mexico, arranged in the following order: Tepehuane, Tarahumare, Huichol, Cora and Tarasco. It will be noted that the northern tribes, the Tepehuane, the Tarahumare and the Huichol, have been affected less than the southern by Spanish influences.

Indians of Mexico.

The region inhabited by the Huichol is comparatively arid, hence most of their religious ceremonies are intended to propitiate the gods of rain, and their ceremonial objects are covered with symbols representing rain. A large series of these objects is on exhibition. Elaborate ceremonies pertain to the pilgrimages after the cactus, from which the drink known as "mescal" is made. These ceremonies are illustrated by many specimens. The Huichol are skilful weavers, and the collection shows many samples of their work. A group shows the methods employed by this tribe in making arrows and cloth.

The Huichol.

The other tribes of southern Mexico and Guatemala (see the cases in the northwest corner of the hall) show the survival of pre-Columbian culture in their sacrificial jars, masks and other objects, most of which pertain to ceremonial rites.

CULTURE OF THE BASKET-MAKERS OF SOUTHEASTERN UTAH. A CASE IN HALL NO. 202

The south side of the hall is devoted to the collections showing the culture of the tribes of the pueblos of New Mexico and Arizona and the cliff-dwellings of Colorado and Utah. Some of these peoples are now extinct, others still survive. At the entrance (east) is a large series of the various kinds of pottery from the pueblos. Here too is a Navajo blanket in process of weaving. A neighboring case exhibits, by means of raw and prepared materials, tools and photographs, the methods employed by the Pueblo in making pottery and cloth. The manner of preparing native colors and dyes forms a part of this exhibit. In the next upright case, the Hopi "katcinas," or dolls, and "the trousseau of a bride" give further hints as to the life in the modern pueblos.

The Pueblo and the Cliff-Dwellers.

Pueblo Bonito, a prehistoric ruin in the Chaco Cañon, New Mexico, has furnished through the Hyde Expedition a wonderful array of choice objects. These have been installed in the center of this side of the hall, and include chalcedony and obsidian arrow points; stone implements of many kinds; bone needles, awls, bodkins and chisels; pottery bowls, pitchers and jars; turquoise beads, pendants and figures, to the number of more than fifty thousand; arrows, spears and axes. A series of flutes shows that these ancient people were cultivated in music. Carved sticks were used in some ceremonials in the same pueblo.

Pueblo Bonito.

Other pueblos and the cliff-dwellings have furnished through the same expedition a wealth of material showing the advanced culture of their prehistoric inhabitants. One case shows all kinds of ancient sandals, and exhibits by means of specimens the mode of manufacture and the manner of wearing. A prehistoric cotton blanket is on exhibition, together with the ancient implements of weaving.

A Guide Leaflet, entitled "The Basket Makers of Southeastern Utah," describes in some detail the unique collection in the large case in the southwestern corner of the hall. This leaflet may be found attached to the case, or the visitor can purchase it from the attendant.

The William Demuth Collection of pipes shows the manner of use of smoking-tobacco in many parts of the world.

On account of their height, the casts of two stelæ from the ruins of Quirigua, Guatemala, have been installed in this hall instead of in Hall No. 402.

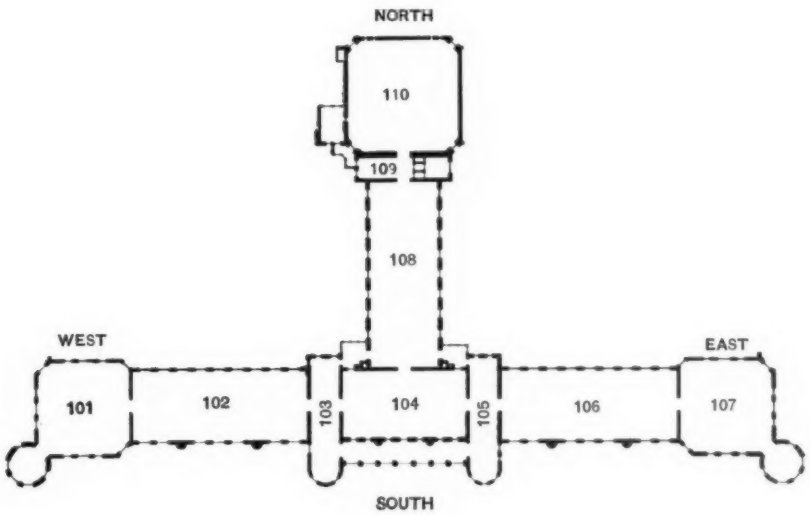
Archæology of Central and Eastern North America.

Beyond this hall one passes into the corner hall of the West Wing (No. 201), which contains extensive collections of the antiquities of the central and eastern parts of North America. The specimens are arranged according to the localities where they were found, those from the northern region being on the north side of the hall; from the eastern, on the east side, etc. The antiquities from Manhattan Island and the vicinity of New York City, a model of an Ohio mound and a cache of 4,800 chipped objects from Illinois (probably constituting a prehistoric arsenal) are of special interest. There is an extensive exhibit of the artifacts and human bones which have been found in the terraces along the Delaware River, near Trenton, N. J., in the course of investigations carried on during many years by the Museum. These remains are thought to indicate that man was in existence upon this continent at the close of or during the later stages of the Glacial Epoch. There is a Guide Leaflet to the "Saginaw Valley Collection," which may be borrowed or purchased of the attendant.

In the Tower Room are displayed types of prehistoric implements, forming the Andrew E. Douglass Collection, which was presented to the Museum in 1900.

Going back again to the East Corridor (No. 205), the visitor will descend to the ground floor of the building and there complete his survey of the Museum.

FIRST FLOOR

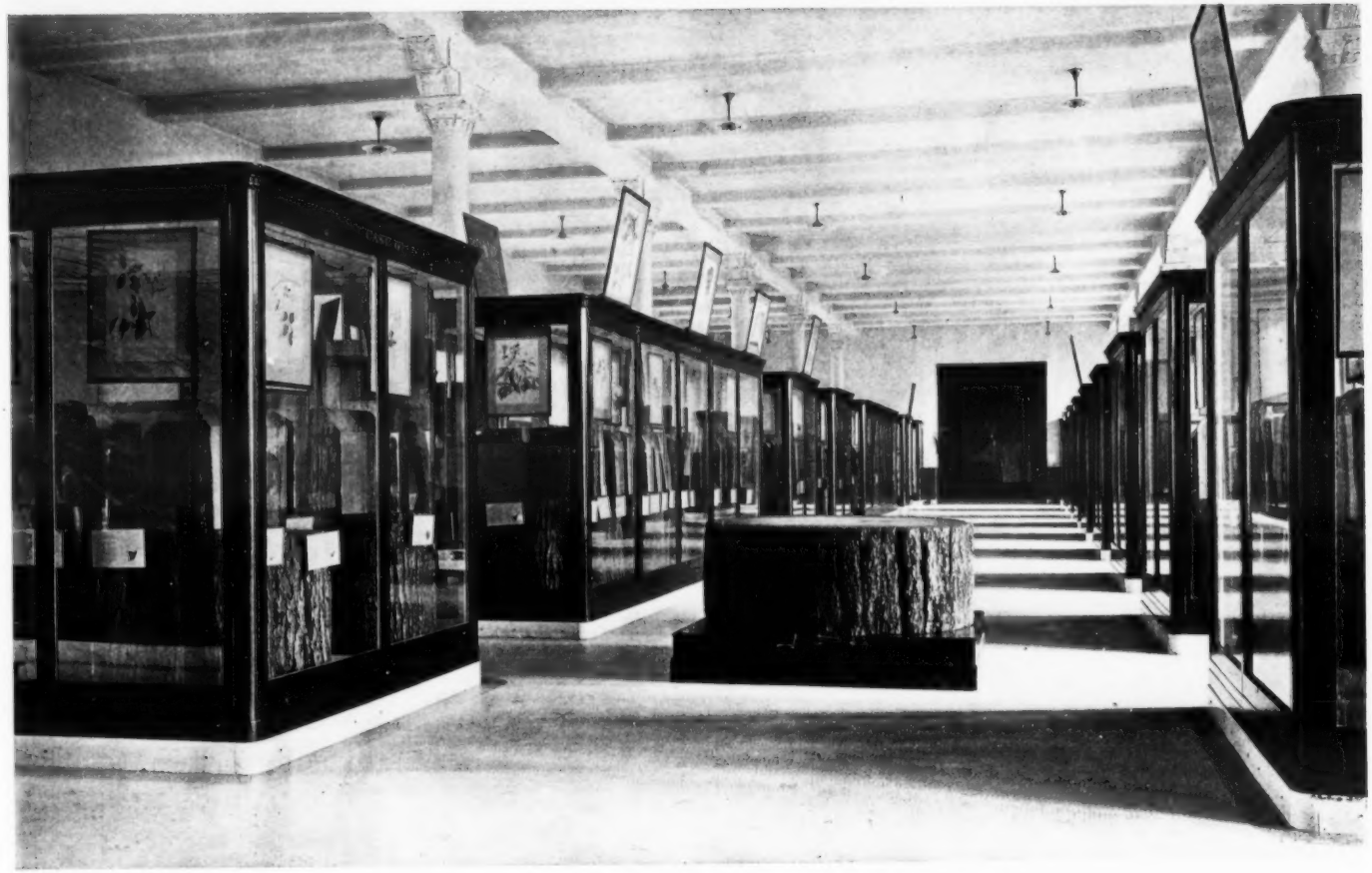


Turning as before to the east, one enters the first hall of the East Wing (No. 106), which is devoted to the exhibit of North American Forestry. At the entrance of the hall, there has been placed a key-diagram giving the plan of arrangement of the collection, which should be consulted by the student.

North American Forestry.

The exhibit consists of the Jesup Collection of Trees of North America, which is the most complete collection of the kind in any museum. The specimens are elaborately labeled and are accompanied by water-color sketches of leaves, flowers and fruit. Small maps show the geographical distribution of each species. The general scheme of arrangement is that conifers, chestnuts, oaks etc., are on the north side of the hall, while walnuts, maples, ebony, mahogany etc., are on the south side. The collection was presented to the Museum by its president, Morris K. Jesup, Esq.

For lack of space here, two important wood specimens have been placed in the next hall.



NORTH AMERICAN FORESTRY. HALL NO. 106

Beyond the Wood Hall is the Hall of Invertebrate Zoölogy (No. 107). On the north of the entrance is a section of California redwood, and on the south a section of the Sequoia or "Big Tree," 16 ft. 8 in. in diameter. A Guide Leaflet entitled "The Sequoia" may be borrowed or purchased from the attendant.

Big Tree.

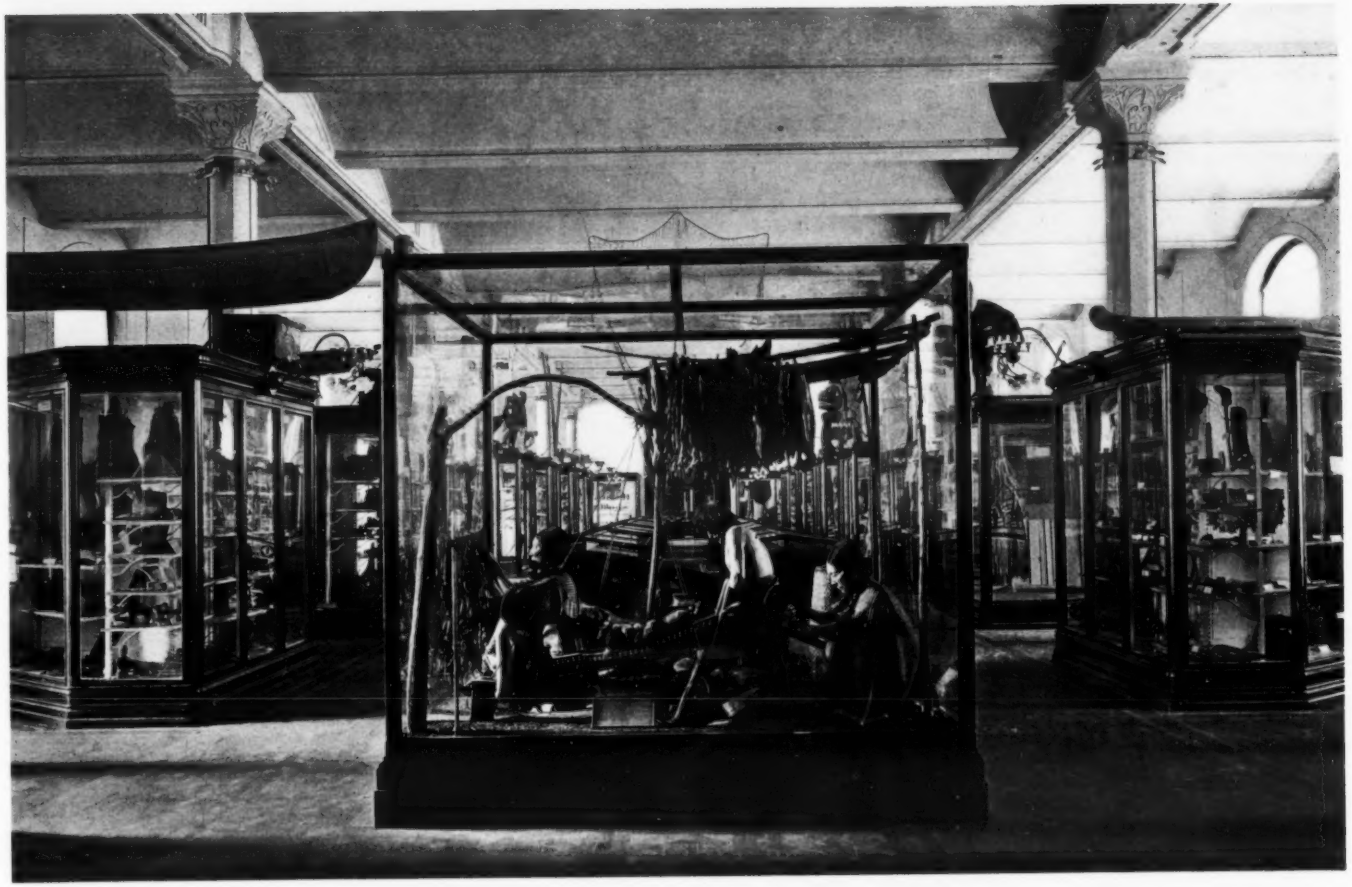
The key-diagram at the entrance of the hall enables the visitor to comprehend at a glance the arrangement of the collections. The "alcove" plan has been followed strictly in the disposition of cases around the outer portion of the hall. These alcoves contain the synoptic collection of invertebrates, and by beginning in the northwest corner and going from left to right around the hall one passes from the lowest to the highest forms of animal life. The exhibition of microscopical animals, in Alcove I, will warrant careful examination. The Sponges in Alcove II have exquisite beauty. In Alcove III are excellent models of living coral-forming animals. Special exhibits have been placed in the center of the hall. Among the most interesting specimens are the models of the Giant Squid and Octopus, two large corals, models of the development of Crepidula egg, and an exhibit showing the life history of Mosquitoes and their relation to malaria. On the south wall hangs a specimen of the Giant Spider Crab from Japan.

Invertebrate Zoölogy.

The Tower Room, opening out of this hall, contains a special exhibit of stony corals, largely the gift of Mr. Percy R. Pyne.

The visitor will now retrace his steps through the Wood Hall to the East Corridor (No. 105), where he will find displayed the Jesup Collection of Building Stones. The main portion of this series consists of four-inch cubes duplicating the collection made for the United States National Museum in connection with the Tenth Census. The specimens are arranged geographically according to the States from which they came, and under each head they follow the same grouping, granites and other crystalline rocks, sandstones, limestones and marbles being placed together. The eight-inch cubes on the tops of four of the cases form an exhibit of the various building stones occurring in Georgia.

Jesup Building Stones.



ETHNOLOGY OF THE NORTHWEST COAST OF AMERICA. HALL NO. 108

From the East Corridor pass to the North Wing (Hall No. 108). The visitor, on entering this hall, should first consult the key-diagram, from the map accompanying which he will note that the hall contains material illustrating the tribes of the northwestern coast of America and the contiguous plateau region. The collections from the coast tribes have been installed in two series: **Northwest Coast.**

First. A general or synoptic collection of specimens obtained from the entire area, designed to illustrate the culture of the people as a whole;

Second. Several independent collections, each illustrating the peculiarities of the culture of a single tribe.

The collection forming the first series occupies three alcoves on the north side of the hall. This collection shows:

(*a*) Natural products that are of economic value: the vegetable kingdom furnishes food and material for manufactures; the multitude of objects made from the cedar, such as blankets, baskets, ropes, boxes, canoes, illustrate the importance of this tree; the animal kingdom provides fish for food, horn for manufacture into spoons, skin for blankets, wool for weaving, shell for ladles, bone for tools, porcupine-quills for purposes of ornament; the mineral kingdom furnishes material for axes, hammers, scrapers and other tools. **Synoptic Collection.**

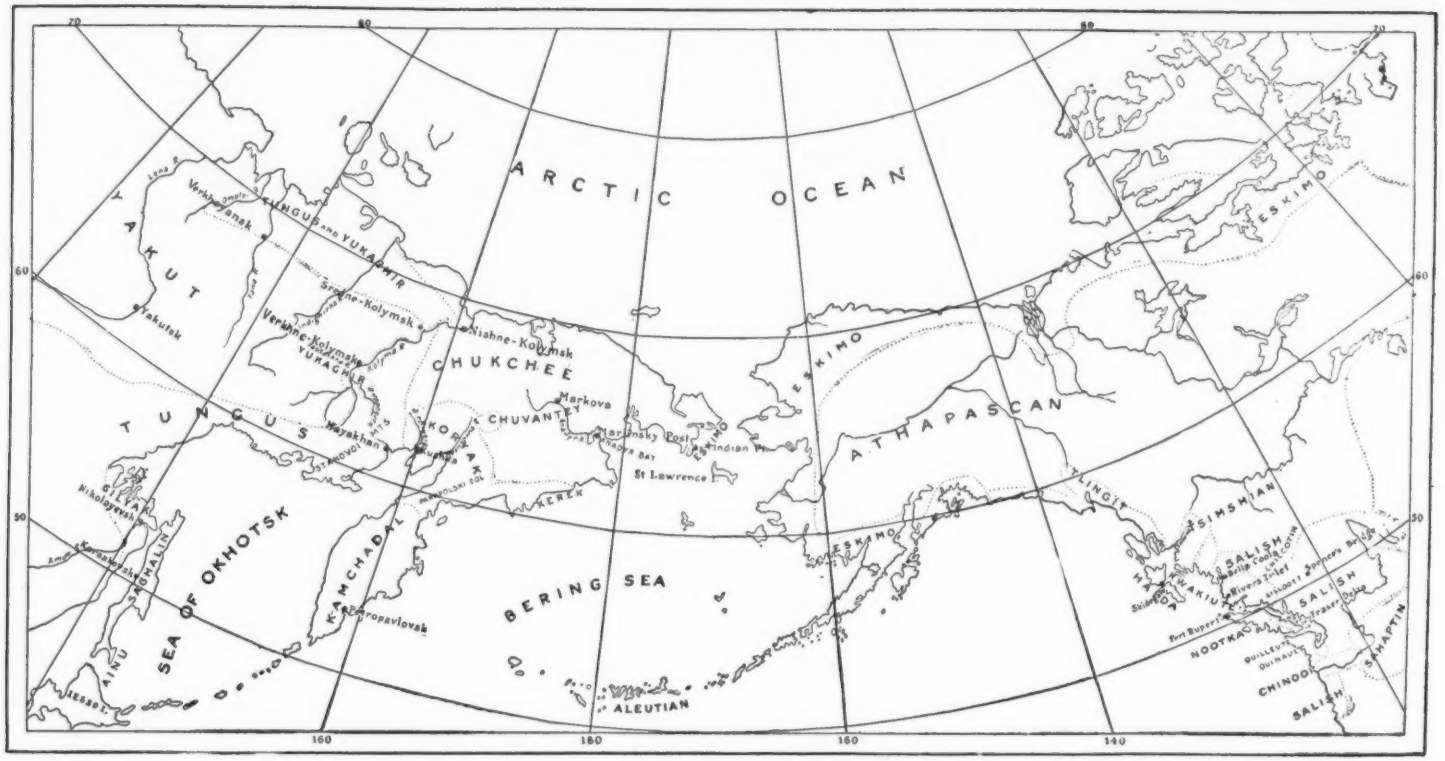
(*b*) The industries of the people, as illustrated by their work in stone: pecked hammers and mortars and polished knives and ornaments; their work in wood,—splitting and planing, bent-work, carving; their weaving,—baskets, mats and clothing; their painting, rope-making and modern metal-work.

(*c*) House-furnishings,—principally boxes, dishes and baskets,—of which there are several examples in Alcove 2.

(*d*) Dress and ornament, illustrated by life-sized figures, some of which show the custom of wearing labrets and nose-rings.

(*e*) Trade and barter,—copper plates used as standards of value, and articles that have been imported from the tribes of the interior, from the Eskimo and indirectly from more distant countries.

(*f*) Hunting and fishing,—bows and arrows, spears, fish-hooks,



42 DISTRIBUTION OF TRIBES INVESTIGATED BY THE JESUP NORTH PACIFIC EXPEDITION. SEE HALLS NO. 108, 102, 101

lines, nets and traps. A special exhibit of traps (in Case S) supplements the material in Alcove 2.

(*g*) Travel and transportation,—canoes, snow-shoes, climbing-apparatus etc.

(*h*) Armor and weapons (entrance to Alcove 3),—a number of pieces of armor made of slats and rods which are especially characteristic of these people; bone and iron daggers, stone clubs.

(*i*) Musical instruments (Alcove 3),—flutes, whistles, rattles and a cedar-box drum.

(*j*) Decorative art (Alcove 3). The specimens here exhibited show that, in their decorative art, the people employ somewhat realistic animal motives, the form of the animal body being dissected and distorted so as to fit the decorative field.

(*l*) Clan organization (entrance to Alcove 4),—models of totem poles bearing carvings of the crests and other symbolic designs of the family or clan. These are at the same time illustrative of the art of the people.

General Collection.

The collections of the second series—*i. e.*, the collections illustrating the culture of each individual tribe—commence in Alcove 4 with those from the Tlingit and extend around the northern half of the hall in the order of the geographical succession of the tribes from north to south, thus (consult the map in the key-diagram near the south entrance of the hall; see also page 42):

The TLINGIT (Southern Alaska), Alcoves 4, 5, 6.

The TSIMSHIAN and the HAIDA (Northern British Columbia), Alcoves 6, 7, Center Case 20.

The BELLA COOLA (Central British Columbia), Alcoves 8, 9.

The KWAKIUTL (Northern Vancouver Island), Alcoves 9–12.

The NOOTKA (Southern Vancouver Island), Alcoves 12, 13.

THE COAST SALISH (Vancouver Island and Washington), Alcove 13.

The PLATEAU TRIBES (British Columbia and Washington), Alcoves 14, 15, 16.

Archæological material from the whole region is exhibited in the desk cases along the middle of the hall.

On the whole, the special collections are arranged in the same order as the general synoptic collection illustrating the culture of the coast tribes. The collections from the Tlingit of southern Alaska (Alcoves 4, 5, 6) are remarkable particularly on account of the great number of excellent old pieces of superior workmanship. The numerous masks from this region were used by the shamans in their ceremonies and represent their individual protectors.

The Tlingit.

In the collections from the Tsimshian and Haida of northern British Columbia (Alcoves 6 and 7 and Center Case 20) paintings and models of totem-poles will be found, which illustrate fully the use of the crest and the representation of family traditions on the carvings of these people. Their masks are also used in festivals celebrated by the various families.

The Tsimshian and the Haida.

The collections from the Bella Coola of central British Columbia (Alcoves 8 and 9 at north end of hall) contain a full set of ceremonial masks illustrating all the important deities of the tribe, chief of which is the Sun.

The Bella Coola.

A very full collection from the Kwakiutl of Vancouver Island is found in Alcoves 9–12. The peculiarities of their industries are illustrated by numerous specimens. Many of the masks (Alcove 11) are used in pantomimic representations of the traditional history of the families; while others, together with neck-rings and head-rings of cedar-bark, belong to the ceremonials of their secret societies, particularly to those of the Cannibal Society (Alcove 12).

The Kwakiutl.

Next in order come the collections from the Nootka (Alcoves 12 and 13), whose industries and customs are similar to those of the Kwakiutl. The masks and carvings which they use, however, are much ruder than those of the northern tribes. This is the only tribe that hunts the whale. Their whaling-harpoons are exhibited in Case S at the south end of the hall.

The Nootka.

On the south side of Alcove 13 are found collections from the Coast tribes of the State of Washington (Coast Salish). The culture of this region shows a gradual transition to that of the tribes of the interior. Here we find basketry highly developed.

The Coast Salish.

The material in Alcove 14 is so arranged as to bring out as strongly as possible the contrast between the culture of the coast and that of the interior. The cases contain excellent basketry, and garments made of skin decorated with painted geometrical designs and with pictographic representations. Here we also find specimens illustrating the use of the horse. The clothing exhibited in Alcove 15 shows the close affiliations of this culture with that of the Plains Indians. The garments are made of skin decorated with feathers, painted and embroidered. The similarity of culture with the eastern Indians is still greater among the Plateau tribes near the Columbia River (Alcove 16). Here we notice painted hide bags, embroidered blankets and bead-work quite similar to that of the eastern Indians. The tribes of this district also excel in basketry similar in type to that of the interior of British Columbia.

The Plateau Tribes.

The contrast between the occupations and the dress of the coast tribes and those of the interior is brought out in three groups in the middle of the hall.

The desk cases along the center of the hall contain archæological collections. The southern cases exhibit material from the plateau region, while the northern cases contain material from the coast region. It seems that, on the whole, the culture of the prehistoric tribes has been the same as that of the present tribes.

Archæological Material.

Most of the material in this hall was obtained by the Jesup North Pacific Expedition.

From the north end of Hall No. 108 one passes through the North Corridor (No. 109) into the Lecture Hall (main floor). This is the center of great activity during the fall, winter and spring months. Regular courses of lectures are given on Thursday evenings by members of the scientific staff to Members of the Museum, on Saturday mornings to the teachers in the public schools (in co-operation with the State Department of Public Instruction), on Tuesday and Saturday evenings to the general public (in co-operation with the City Board of Education), and on other occasions as need arises. About ninety lectures are delivered in the course of the season.

Lecture Hall.

The hall is 100 feet square and can seat an audience of 1,500 people. It is provided with two screens, each 25 feet square, and the illustrations for the lectures are projected by means of two double electric stereopticons.

Leaving Hall No. 108 at the south end we pass to the West Corridor (No. 103). Here, extending upward through three stories of the building, is a Haida totem-pole, 52 feet tall, from Queen Charlotte Island.

Continuing toward the west, North American Hall (Hall No. 102) is entered next. The collections in the south side of this hall represent in sequence the cultures of the Indians of the Plains, of the Eastern Woodlands and of part of the Southwest. The visitor is recommended to begin here in continuation of the studies which he has made in the North Wing (No. 108).

North American Hall.

The collections from the Plains Indians have largely been made from the point of view of illustrating their decorative art and their ceremonials. The first case on the south side (Case 17) contains material from the Blackfoot. This is followed by collections from the Cheyenne (Case 18), Arapaho (Cases 18–21), Gros Ventre (Cases 21, 22), Sioux (Cases 23–26), Shoshone (Cases 27–28), and Ute (Case 29),—all representatives of the Plains culture.

The Plains Indians.

These tribes originally subsisted on the buffalo, and consequently most of their utensils pertain to the preparation of skins and to the manufacture of implements of bone (Case 19). The present ceremonials of the Plains tribes are much modified by the teachings of recent Indian prophets, which have taken the form of the so-called "Ghost dance," the paraphernalia of which are exhibited in Cases 19 and 20. Bags containing certain sacred objects are much used. Such a sacred bag is in a case in the center of the hall. Among many tribes there exist societies grouped according to ages, which perform ceremonial dances, each with separate paraphernalia; the objects pertaining to four such dances are shown in the wall-case, south side of hall.

The significance of the peculiar geometrical ornamentation employed by the Plains Indians is illustrated (Case 20) as found among the Arapaho. The Gros Ventre (Cases 21, 22) are closely related to the Arapaho. In the collection from the Sioux, a number of war-clubs and bows and arrows will be found (Case 23). Saddles, quirts and saddle-bags illustrate the extended use of the horse, which has so much influenced the life of the Plains Indians since its introduction. The "horse travois" in Case 23 shows a means of transportation. The pictographic symbolism and the decorative art of the Sioux are illustrated by many shields and garments. The industries and decorative art of the Shoshone and of the closely related tribes of the Bannock and Ute are exhibited in Cases 27–29.

The great ceremonial known as the Sun dance, which is so characteristic of many of the Plains tribes, is illustrated by a group in the center of the hall.

Indians of the Eastern Woodlands.

The culture of the Indians of the Eastern Woodlands is shown in Cases 29–31. The life of these tribes has been very much influenced by contact with the whites; but in a few districts some of the old industries still survive. The pouches (Case 28) and the mats (Case 29) from the Sauk and Fox probably represent the ancient type of ornamentation of this district. These Indians practise agriculture, and in some regions live on wild rice. Agricultural tools and products are shown in Cases 30 and 31.

Adjoining these people to the north live the Athapascan of the Mackenzie area, who subsist on hunting and fishing, and whose present industries have been highly modified through contact with the Hudson Bay Company (Case 33).

The Indians of part of the Southwest are illustrated in the long wall-case on the south side of the hall by a collection of basketry of tribes in Arizona: the Apache, Pima and Papago.

The visitor is advised to return now to the east end of the hall, and to begin an inspection of the collections in the northern half. These represent the cultures of the Eskimo tribes from Greenland to Siberia and those of the Ainu and some of the tribes dwelling along the Amur River.

ESKIMO WOMAN, WEST COAST OF HUDSON BAY. HALL NO. 102

The wall-case at the entrance and Cases 1 and 2 contain a comparative series illustrating the uniformity of the cultures of the Eskimo of the whole area, extending even to the Chukchee of northeastern Siberia.

Eastern Eskimo.

The collections from Smith Sound (Cases 1 and 3) show that the objects made by the tribe of Eskimo living here are very rude in form. Along the west coast of Baffin Bay a greater variety of objects and tools is used (Cases 3 and 4), partly owing to the greater abundance of drift-wood. The natives of this region use whaling-lances (Case 4), and have ceremonials in which masks are used.

Southampton Island Eskimo.

The Eskimo of Southampton Island have had very little contact with Europeans; consequently we find here (Case 5) stone-tipped arrows and harpoons, toboggans made of whalebone, implements for chipping stone, and other very primitive objects. Wherever steatite, or soapstone, occurs, the Eskimo make lamps and pots out of it, but in the limestone area of Southampton Island, in Hudson Bay, where no steatite is available, lamps and pots are made by cementing together slabs of limestone (Case 4).

Hudson Bay Eskimo.

The tools and implements of the Eskimo of the west coast of Hudson Bay (Cases 5, 6, 7) are more varied, partly because musk-ox horn and a rather plentiful supply of wood are available for manufactures, partly on account of the influence of the neighboring Indian tribes.

Mackenzie River Eskimo.

There is a decided change in the type of culture west of Mackenzie River. The implements of the Eskimo of this area, which includes Alaska, are much more complex than those of the other tribes, and there is a strong tendency to decoration which is absent among the eastern Eskimo. We find here highly differentiated forms of harpoons (Case 7), ivory objects with pictographic representations (Case 8), stone implements and stone ornaments of varying form, and harpoons with property-marks (Case 9), coiled and woven basketry and a great variety of masks (Case 10). The culture of the Eskimo of Siberia (Case 11) is practically identical with that of the Eskimo of Alaska.

The remainder of the hall is taken up with collections from southeastern Siberia.

Cases 12 and 13 contain material from the Ainu of Yezo and Saghalin. Many of the objects exhibited in these cases show a strong influence of Japanese culture, while others show that the culture of the Ainu resembles that of other Siberian tribes. We find here simple basketry, clothing woven of nettle-fibre, carved wooden dishes and many objects used in ceremonials connected with the bear-hunt. **The Ainu.**

The tribes of the Amur River region (Cases 13–16) are highly influenced by their neighbors the Chinese. They live principally on salmon, and their garments are largely made of salmon-skins, but elk-hide is also used (Cases 13–15). More recently garments with silk embroidery and appliqué-work have been used. The characteristics of their patterns are scrolls, which are worked out in the forms of roosters and fishes (see particularly turn-stand on wall on north side of hall). Similar work is done in wood-carving and birch-bark (Case 16). Among these tribes the bear-hunt is connected with many ceremonials in connection with which beautiful inlaid lances are used (Case 16). In the treatment of the sick, crude carved amulets representing the spirits of diseases are used (Case 16). Their canoes, which are partly covered on top, have long ends projecting under the water (case in middle of hall). Models of the houses, sledges and boats of the Amur tribes are exhibited in the wall-case at the west end of the hall. **Tribes of the Amur River.**

Leaving the North American Hall at the western end, the visitor finds himself in Hall 101 of the West Wing. This hall is filled with the Siberian collections obtained by the Jesup North Pacific Expedition. These form the most complete exhibit of the culture of that region in existence. **The Siberian Hall.**

The tribes represented in the hall are, beginning at the right of the entrance (consult also the map on page 42):

The CHUKCHEE (Coast of Bering Sea and inland), Cases 1–5;

The KORYAK (Coast of Bering Sea and inland), Cases 6–9;

The KAMCHADAL (Peninsula of Kamchatka), Case 9;

The YUKAGHIR (Basin of Kolyma River), Cases 10, 11;
The TUNGUS (Coast of Sea of Okhotsk), Cases 12–15;
The YAKUT (Basin of the Lena River), Cases 15–18.

One section of the Chukchee and Koryak inhabits maritime villages and subsists by hunting sea-mammals, while another section of the tribes dwells in the interior and lives upon the produce of reindeer-breeding. The customs of these two divisions of the tribes are very much alike.

The clothing worn by the Chukchee is illustrated in Case 1, beside the entrance. The skins of reindeer and of seals are used for both winter and summer garments. Household utensils, such as stone lamps, kettles and spoons, and implements for various industries, such as skin-dressing and work in bone and wood are shown in Case 2. Snowshoes and snow-staffs indicate the mode of travel. **The Chukchee.**

Harness and other articles (Cases 2 and 3) show the use of dogs and reindeer as draught-animals. On the west side of Case 3 are objects used in hunting the whale and other sea-mammals. Case 4 contains bows and arrows and suits of armor. The armor evidently was made in imitation of that of the Japanese. Amulets and sacred fire-drills are used in the ceremonials of the Chukchee. The adjoining "A" cases contain pictographic representations (many of which are used in prayers), wooden and ivory carvings, ornaments and pipes.

Models of various types of sledges of the Koryak and Chukchee are exhibited in Case 5.

The clothing of the Koryak (Case 6) is much more elaborately decorated than that of the Chukchee. The decoration is partly in embroidery, partly in skin mosaics. Their pictographic representations and their carvings in bone, ivory and horn, are shown in the adjoining "A" cases. **The Koryak.**

The Koryak are the only tribe of eastern Siberia possessing a well-developed iron industry. Tools and manufactured objects of iron will be found in Case 7, in which there are also objects of pottery quite similar in type to that of Alaska. Among the Koryak industries, basketry deserves particular mention (Case 7). Their weapons and the style of their armor are quite similar to those of the Chukchee (Case 8). In their festivals, many of

CHUKCHEE MAN, EASTERN SIBERIA. HALL NO. 101

which pertain to the hunt of the whale, elaborately decorated garments are worn, and masks made of grass and of wood are used (Case 8). On the north side of Case 9 are shown garments in which the body of a dead person is dressed when it is placed on the pyre to be burned.

The south side of Case 9 contains basketry and birch-bark objects from the Kamchadal, a collection of particular value because the primitive culture of this Kamchatka tribe is practically extinct. **The Kamchadal.**

The Yukaghir live farther to the west. Specimens from the tribe are contained in Cases 10 and 11 and in the small case near by. The Yukaghir have hardly any reindeer, and subsist on fish; consequently they are poor, and the objects used by them are much simpler than those found among the Koryak. Attention is called to the peculiar shaman's drums and the shaman's coat set with numerous tassels (Case 10). Case 11 contains a model of a Yukaghir tent, and models of boats and fish-traps. There are also birch-bark baskets for household use and for berrying and snowshoes for travelling. The "A" case near by contains objects illustrating their industries, and a series of peculiar pictographic birch-bark records, which are characteristic of this tribe. **The Yukaghir.**

The Tungus (Cases 12–15) are a tribe which have recently scattered over extensive areas in eastern Siberia. Their cradles (Case 12) and their garments (Cases 13, 14) are quite different in type from those of the more eastern tribes. Their shamans use drums, and they wear coats set with iron ornaments (Case 14). The people use reindeer for riding. Saddles will be found in Case 15. Household furniture, bows and arrows and snowshoes are exhibited in the same case. **The Tungus.**

The culture of the Yakut, a tribe belonging to the Turkish family, is shown by the specimens in Cases 15 to 18. Until quite recently the religion of the tribe was shamanism. The drums and dresses used by their shamans (Case 15) are similar to those of the Tungus. Hunting and fishing and household life are illustrated by specimens in Case 16. The every-day clothing and the more elaborate dresses of the wealthy Yakut are exhibited in Case 17. The "A" case near by contains silver **The Yakut.**

ornaments used by this people. Case 18, beside the entrance, contains material illustrating the use of the horse among the Yakut. An important part of the subsistence of the tribe is mare's milk, which is made into kumiss and into butter in large leather churns. Kumiss is also used in ceremonials, when it is served in large carved goblets. Butter-jars and large milk-pails are made of birch-bark. The Yakut canoe (top of Case 17) is similar in type to that of the Amur tribes exhibited in Hall 102.

THE AMERICAN MUSEUM JOURNAL

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What the Museum Needs.

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All money received from membership fees is used for increasing the collections.

Publications.

The publications of the Museum consist of an Annual Report, in octavo, about 96 pages; the Bulletin, in octavo, of which one volume, consisting of about 500 pages, and about 50 plates, with numerous text figures, is published annually; the Memoirs, in quarto, published in parts at irregular intervals; an Ethnographical Album, issued in parts, and the American Museum Journal.

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